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JAMES
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Health Preserved,

IN TWO

TREATISES.

I. On the Diseases of ARTIFICERS,
which by their particular Callings
they are most liable to.

With the Method of *avoiding* them, and their
Cure.

By *BERN. RAMAZINI*, M. D.
Chief Professor of Physick at *Padua*.

II. On those Distempers, which arise from
particular Climates, Situations and Me-
thods of Life.

With Directions for the Choice of a healthy *Air*,
Soil and *Water*.

By *FREDERICK HOFFMAN*, M. D.
Physician to the present King of *Prussia*.

Translated and enlarged, with an *Appendix*,

By *R. JAMES*, M. D.
Author of the Medicinal Dictionary.

The SECOND EDITION.

L O N D O N:

Printed for JOHN WHISTON, at Mr. *Boyle's Head*, and
JOHN WOODYER, at *Cæsar's Head*, both in *Fleet-*
Street. 1750.

Health Treatise
J. B. Barnes

TREATISE

Barnes

I. On the Diseases of the Lungs, which enter their
periods of Life.
With Directions for the Choice of a Family Physician,
and a Woman.

By J. B. BARNES, M.D.
Author of the Medical Dictionary

II. On the Diseases of the Lungs, which enter their
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Printed for John W. Woodbury, at Mr. Woodbury's, in New
York, 1750.

THE AUTHOR'S

PREFACE.

WE find it both recorded in Authors, and mentioned in common Conversation, that Nature, the kind Parent of all Things, is oftentimes, traduced by impious Men as having provided for Mankind in several Things, either too scantily, or without sufficient Decency. And no Part of this calumnious Charge is more unjust, than that of her having laid every one under a Necessity of daily Bread, for maintaining and supporting the Life that would otherwise be destroyed: For were Mankind disengaged from that Task, they would acknowledge no Law at all, and the Earth we live upon would have a quite different Aspect from what it has now: Hence Perilius very ingeniously makes the Belly, and not the artificial Hand, to be the Master and Inventor of Arts.

Quis expedit Psittaco suum Chaire,
Picasque docuit verba nostra conari?

Magister Artis, Ingeniique largitor

Venter. ————— In Prolog.

So that we may justly assert, that this Necessity which inspires the very irrational Animals with Ingenuity, is the Source of all Arts, whether Mechanic or Liberal; which indeed are

no trivial Advantages to Mankind, though this Good, like all other human Things, is not without a Tincture of Evil. For we must own that some Arts intail no small Mischiefs upon the respective Artisans, and that the same means by which they support Life, and maintain their Families, are oftentimes the Cause of grievous Distempers, which hurry them out of the World. Now, having observed this frequently in the Course of my Practice, I bent all my Thoughts upon writing a Treatise of the Diseases of Tradesmen or Artificers: But, as in the Cultivation of mechanic Arts it generally falls out, that if any new Invention is discovered by an Artist, it appears at first with some Imperfection and Roughness, and is afterwards brought to Perfection by the Diligence and Industry of others; so in the Republic of Letters, the same Inconveniency is the usual Reward of new Attempts. And that this Treatise of mine will undergo the like Fate, I have several Reasons to believe; particularly, because it has something in it that is new. For I do not know, that any Author has yet appeared in this Field, which may afford no contemptible Crop of Contemplations relating to the Subtilty and Efficacy of Effluvia. So, I freely confess that what I now publish is but an imperfect Performance, or rather an Incitement to others to lend their helping Hands, till an intire and compleat Treatise is obtained, that may deserve well of the Commonwealth of Physic. It is certain we owe this Piece of Service

to the miserable Condition of Tradesmen, whose Professions even of the meanest and most sordid Kind are so advantageous and necessary to Mankind: This Debt, I say, is due from Medicine, the noblest of all Sciences, as Hippocrates calls it, which gives Relief to the Poor, and dispenses Cures gratis.

If we consider what a vast Difference there is between the Europeans and the Americans, or the other barbarous Nations of the new World, we cannot but be sensible, that Mechanic Arts have contributed very much towards the civilizing of Mankind. And accordingly we find it recorded in various Monuments of Antiquity, that the Founders of great Cities and Kingdoms took a particular Care of Workmen and Tradesmen. For they instituted Colleges and Societies of Artificers: Plutarch informs us, that Numa Pompilius was much admired and valued for dividing Artists according to their respective Trades; So that the Musicians, for instance, were in one Class or Company, the Goldsmiths in another; and so of the Architects, Dyers, Shoemakers, Blacksmiths, and others. We read likewise in Livy, that in the Consulship of Appius Claudius and P. Servilius, they instituted a College or Company of Merchants, under the Title of Mercuriales, so called, because they worshipped Mercury as the President of Merchandise. And Plato in his Book de legibus, says, Tradesmen are consecrated to Vulcan and Minerva, two Deities who work hard.

de Jure antiquo Romanorum, and Panciro-
 lus de notitia utriusque Imperii, shew at large
 to what Rights and Privileges these Companies
 were intitled: For they were admitted to vote
 and enjoy Posts of Honour, and therefore Sigo-
 nius says, the Tradesmen were listed into the
 Number of the Citizens of Rome. We find
 Tradesmen mentioned in the Pandects and the
 Codes: And in Caius J. C. in l. 1. ff. Quod
 cujuscunque universitatis nomine vel contra
 eam egatur, We have a Description of these
 Societies of Tradesmen, together with their
 Laws and Privileges, insomuch that they were
 allowed to transact their own Affairs like a Re-
 public, to receive Legacies, and to make By-laws
 to themselves, provided they did not hinder the
 public Laws, as Paulus has it, in l. cum Se-
 natus ff. de rebus dubiis. Suetonius writes
 that the Emperor Vespasian was a great In-
 courager not only of liberal, but even of illi-
 beral and mechanic Arts, and always gave the
 meaner sort of Workmen the Opportunity of
 being constantly employed, and of earning Mo-
 ney; in so much that when a certain Architect
 boasted that he could with small Charge add a
 great Pile of Building to the Capitol, he made
 Answer he would rather go on in employing and
 maintaining his poor People.

Now since both Antiquity and the Age we
 now live in, shew Laws in all well-governed
 Cities, calculated for the good Order and Re-
 putation of Tradesmen; it is but reasonable
 that Medicine should contribute it's Share, for
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the Benefit and Comfort of those of whom the Law has been so tenderly careful, and display itself in a particular Manner (a Thing hitherto neglected) for the Safety of Tradesmen, that they may follow Trades without injuring their Health. For my own Share, I have done what I was able to do, and thought it no Indecency to step sometimes into the meaner Sort of Work-houses, and view the Secrets of Mechanic Arts; especially now that almost all Physic is reduced to Mechanism, and the Schools sound of nothing so much as the Automaton, or Machine of the Body. In the mean time I hope all candid Physicians will excuse my Imperfections, upon the Consideration, that all Trades are not followed and practised in one City or Country, there being different Trades according to the Variety of Countries that may give rise to Diseases. The Shops, or Work-houses of Tradesmen are the only Schools in which we find any satisfactory Knowledge of these Matters; and out of these Places I have endeavoured to pick whatever might best please the Taste of the Curious; and chiefly indeed to suggest such Cautions, as may serve to prevent and cure the Diseases to which Tradesmen are usually subject. When a Physician therefore is called to visit one of the poorer and meaner sort of People, I would advise him not to feel the Pulse as soon as he comes into a Room, without inquiring into the Circumstances of the Patient, nor to stand, as it were, in a transient Posture, to prescribe where the Life of Man is concerned; but to sit down.

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by the Patient, let the Place be never so sorry, and carefully interrogate him upon such Things, as both the Precepts of our Art, and the Offices of Humanity require us to know. The Divine Hippocrates informs us, that when a Physician visits a Patient, he ought to inquire into many things, by putting Questions to the Patient and the By standers. When you come to a sick Person, says he, you must ask what Uneasiness he is under, what was the Cause of it, how many Days he has been ill, how his Belly is affected, and what Food he eats: To which I would presume to add one Interrogation more; namely, what Trade he is of. For though this Question may be referred to the morbid Causes, yet I reckon it very convenient, and absolutely necessary, when we have to do with vulgar ordinary Patients: But I find it very seldom minded in the common Course of Practice, or if the Physician knows it without asking he takes but little notice of it: Though at the same Time a just Regard to that, would be of great Service in facilitating the Cure. So, I choose to publish this Treatise of mine for the good of the Republic, or at least for the benefit of Tradesmen: And though it is not very artfully writ, I hope the Reader will vouchsafe it a civil Reception.

Da veniam Scriptis, quorum non Gloria nobis Causa, sed Utilitas, Officiumque fuit.

Dr. JAMES's

PREFACE.



THE following Sheets were intended for the Medicinal Dictionary; but the Desires of the Publick to see that Work compleated, and the Impatience of the Booksellers to have it finish'd, oblig'd me to omit it, tho' of Importance sufficient to deserve the Notice of the Publick. The Subject of Endemial Distempers has, from the Time of Hippocrates, been thought worthy of the most serious Consideration. A Detail, therefore, of almost all the Distempers to which most of the Nations in the World are subject, accounted for, from their Air, Water, Situation, Diet, and Habits, and this by the celebrated FREDERIC HOFFMAN, cannot fail being both useful and entertaining.

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The other Part, wherein the Diseases which affect Artificers peculiarly, in consequence of their Trades and Employments, is of so much Moment, as to merit eminently the Consideration of those Physicians, whose Duty it is to consult the Health of so many thousand Tradesmen as inhabit this vast City.

Bernardini Ramazini, *Author of this Treatise*, was born in the Month of November 1633, at Carpi, a small Town about ten Miles distant from Modena; and as his Parents, no doubt, observ'd the happy Dawnings of future Greatness in the Genius of their young Son, they enter'd him, for the sake of Classical Learning, in the College of Jesuits, where the surprising Progress he made, render'd him the Darling of his Masters, and the Admiration of his fellow Scholars.

Having finish'd his Classical Studies, he, about the 19th Year of his Age, went to Parma, where for three Years he applied himself with so much Care and Industry to the various Branches of Philosophy, that he there acquir'd no less Glory and Honour than he had done in the former

mer Seminary. After this, being in a kind of Hesitation whether he should apply to Law or Medicine, he at last resolv'd entirely to follow the latter, of which he became so much Master, that in three Years he was, by the University of Parma, honour'd with his Diploma, as Master of Arts, and Doctor of Medicine.

Ramazini, however, convinced that Theory without Practice could never constitute a genuine Physician, went to Rome, where, with universal Applause, he studied the Practice of Medicine under Antonius Moria Rubens, who finding him an ingenious and skilful Physician, by his Influence settled him in an adjacent Town. But finding his Health, which in his Youth was generally bad, impair'd during his Stay in his new Residence, he thought a Change of Air expedient, and for that Reason return'd to Carpi, his native Climate, where he gradually recover'd, married a Woman of considerable Note, and soon obtain'd both the Intimacy and Esteem of all the Men of Learning and Distinction in the Neighbourhood, at whose Desire

fire he went to Modena in order to practise.

But as the brightest Geniuses sometimes meet with the keenest Opposition, so a false Principle of Emulation, or rather a sordid and brutal Malice, prompted the Physicians and Professors of Modena to do all they could to discredit a Man whom they look'd upon as so formidable a Rival. But the Merit of Ramazini soon triumph'd over the Malice of his Enemies; for in 1682. he was created Professor of the Theory of Medicine in the University of Modena, where he discharg'd that Office with singular Applause for about twenty Years, was employ'd by Persons of the first Distinction, and publish'd several excellent Works of a Medicinal, Philosophical and Poetical Nature. About this Time he was created Member of the Acad. Nat. Curios. by the learned Schrækius its President, who dignified him with the Name of Hippocrates the third, and entertained a perpetual and uninterrupted Correspondence with him. But Merit and Fortune had not as yet conferr'd all the Honours and Dignities they intended upon the celebrated Ramazini; for about
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the End of the last Century, just as this Treatise on the Diseases of Tradesmen was ready for the Press, he received an Invitation from the Senate of Venice, to accept of the Office of Professor of Practice in the University of Padua. This Circumstance gave an unexpected Shock to the Professors and Inhabitants of Modena, who now look'd upon Ramazini as an Ornament to their University, and a common Blessing to their City: But notwithstanding all the Motives they suggested, and all the Entreaties they used in order to secure him to themselves, he had still a laudable Ambition reigning in his Mind, and thought it an Honour to finish his Days a Member of an University so celebrated as that of Padua, and accordingly accepted of the Chair, immediately after which he publish'd this Treatise on the Diseases of Tradesmen; and tho' we frequently find that the Publick is blind to the genuine Merit of some Works, yet it has done sufficient Justice to this, since it has been translated into the respective Languages of all the various Nations of Europe, been eagerly bought up almost at
any

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any Price, and justly become what we commonly call a standard Book.

Ramazini, when enter'd on the Discharge of his Office at Padua, was no less an Ornament to it than the celebrated Sanctorius, who had formerly executed it; for never did Students of all Nations so attentively listen to the Dictates of a Master; and never did a Master take so much Pleasure, or use so much Pains, in forming the Minds of Students, and replenishing them with the most reasonable and salutary Maxims of Practice. In a Word, his singular Learning, the Sweetness of his Temper, the Candour of his Judgment, the Uprightness of his Intentions, the Honesty of his Morals, the Industry with which he discharg'd his various Offices, and the Success of his Practice render'd him so conspicuous, that he was created honorary Fellow of almost all the Academies and Universities of Europe, and courted by all his learned Contemporaries, insomuch that it was thought a singular Honour to be one of Ramazini's Correspondents. But as human Blessings are not intended to be perpetual, this Benefactor of Mankind began at last to feel the natural

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ral Effects of Age, and strong Application of Mind; for he was frequently seiz'd with a violent Palpitation of the Heart, and a Disorder of the Eyes, which terminated in perfect Blindness. These Misfortunes he bore with a Philosophical Patience, or rather a truly Christian Fortitude, till the Month of November 1714, when putting on his Gown, in order to attend his Students, he was seiz'd with a violent Apoplexy, which in twelve Hours Time, put an End to his Life, notwithstanding all the Methods used in order to preserve it.

A DISSERTATION ON DISEASES

Which arise from particular

Climates, Situations, and Methods of
Living, usually called

Endemial Distempers.

THE Word *Endemial* is derived from *Εν*,
In, and *Δῆμος*, *the People*, and is an
Epithet of those Diseases which are pe-
culiar to the Inhabitants of certain Na-
tions, or Countries. With these Dis-
eases and their respective Natures the Physicians ought
to be well acquainted; for, according to *Hippocrates*,
in the Beginning of his Book, *de Aere, Locis, & Aquis*,
“ The Man, who intends to practise Physic in
“ such a Manner as not to be a Reproach to his
“ Profession, must have a due Regard to the vari-
“ ous Seasons of the Year, their different Influen-
“ ces, and the several Diseases they are capable of
“ producing. He must, also, be well acquainted
“ with the State of the Winds peculiar to each
“ Country, and the Qualities of the Waters its
“ Inhabitants drink. He must carefully advert to
“ the Situations of Towns, and the peculiar Na-
“ ture of the Country in which they lie, accu-
B “ rate-

“rately considering, for Instance, whether it is
 “flat and hot, or mountainous and cold. He
 “must, also, reflect with what Diet and Regi-
 “men its Inhabitants are principally delighted;
 “whether, for Instance, they are addicted to
 “Drinking, Gluttony, and Idleness; or habituated
 “to various Exercises, accustomed to Labour,
 “and sonder of Eating than of Drinking. Each
 “of these Circumstances to be accurately inve-
 “stigated and discovered; since, by a Knowledge of
 “these, the Man, who is even a Stranger to a Ci-
 “ty or Country, may become acquainted with
 “its particular Nature, and so effectually discover
 “the several Diseases to which its Inhabitants are
 “subject, that he must be far more capable of
 “prescribing for them, than the Man who does
 “not sufficiently advert to these Circumstances.”

The Diseases, by which the far greater Part
 of Mankind are cut off, are either *Epidemical*, or
 such as, arising from a bad Constitution of the Air,
 and the Vicissitudes of the Weather, rage and
 exert their Fury at particular Seasons; or *Ende-
 mial*, and familiar to certain Nations and Coun-
 tries, in Consequence of the Diet and Regimen of
 the Inhabitants, the Air they breathe, the Exhala-
 tions with which the Atmosphere is impregnated,
 the Water, the Wine, and the Malt-liquors they
 drink. These two Species of Diseases agree in this,
 that both seize a considerable Number at one and
 the same Time: But they differ in this, that the
Epidemical, arising from the Vicissitudes of the
 Weather, the Influence of the Winds, and the
 Influx of the Stars, last only for a certain limited
 Time; whereas those of the *endemial* Kind, draw-
 ing their Origin from a fixed and stated Cause es-
 sential to the Country, remain without Change or
 Variation for many Years. In treating of this last

Class of Diseases we shall not only consider such as are peculiar to *Europe*, but, also, those which are familiar to the other Parts of the World.

To begin, therefore, with *Europe*, that strumous Swelling of the Neck, peculiar to the Inhabitants of some of its high and mountainous Parts, is not, as is commonly believed, produced by the Snow-waters, which are also found in other Parts, but rather by drinking such Waters, as, passing through calcarious Mountains, are coarse, heavy, and richly impregnated with a calcarious Earth; for which Reason drinking the Waters of certain Springs produces a strumous Swelling of the Neck. The *wiss*, the *Grisons*, and the Inhabitants of *Walliserland*, are highly subject to this Disorder. Thus *Munster*, in the third Book of his *Cosmographia*, informs us, “ That the Inhabitants of *Switzerland* “ and *Walliserland* are so afflicted with strumous “ Swellings, that the Weight of the *Strumæ* “ proves a Hindrance to their Speech; and that “ such Women as give suck are sometimes “ obliged to throw them over their Shoulders, like “ Bags, that they may not prevent the Sucking of “ the Infant.”

This Account is confirmed by *Wagnerus*, in his *Hist. Nat. Helvet*. In some particular Parts of the *Grisons* Country, there are Waters of such a peculiar and unhappy Quality, as to produce large strumous Tumours of the Neck, whether they are drank, or only used for boiling and preparing Aliments. Nor is this Misfortune peculiar to the Natives of these Places; for Foreigners, who reside in them for some Years, and use the Waters, though at their Arrival their Necks were very slender, have them rendered as large as that of a Bull, with Dew-laps hanging down from them. By these Tumours the Aspect of the Patient is rendered so

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unseemly, and his Speech so vitiated, that he frequently excites Laughter in those who see the former, or hear the latter: But the lower and more abject of the Inhabitants, glorying in this Deformity, by way of Contempt, call those who have the good Fortune to escape it *Goose-necks*. In the Village of *Flach*, in the Canton of *Surich*, there is a Spring, the Waters of which, when drank, generally produce these strumous Tumours of the Neck; for which Reason it is, by the Inhabitants, called the *strumous Fountain*. Not only those who live near the *Alps* and *Pyrenæan* Mountains are subject to this Disorder, but also, according to *Ortelius*, the Inhabitants of some other Countries, where the Misfortune at present almost ceases to be *endemial*, because the Natives, conscious of the Effects of particular Springs, abstain from them. In some Towns on the *Black Forest*, near which there are metallic Mines, such as *Wildemann* and *Ardreaßberg*, almost all the Women are afflicted with strumous Swellings of the Throat, because they use coarse metallic Waters, impregnated with the Particles of the Stones through which they pass. In the Town of *Constadt*, in *Transylvania*, strumous Swellings are very frequent, in consequence of drinking the Waters. In high and mountainous Countries the cold and penetrating Air contributes not a little to the Production of this Disorder, because, by inspissating the Juices in the subcutaneous Glands, near the *Aspera Arteria*, it obstructs their free and easy Circulation. Hence the small Ducts, Vessels, and Pores, being stuffed with a viscid Humour, produce a preternatural Largeness and Tumour of the Throat. Women are more subject to strumous Swellings than Men, because usually the Vessels and Fibres about their Breasts and Necks are considerably distended, especially during Preg-

Of Endemial Distempers:

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Pregnancy and Labour. This Circumstance is in some measure observed immediately after Conception, since at this Time the Vessels about the Neck become considerably larger than they were before. Hence the Ancients, in order to discover the Virginity of a young Bride, used to measure her Neck before she admitted of the first Embraces of her Husband. Thus *Catullus*, in the Marriage of *Peleus*, tells us,

*Non illam Nutrix orienti Luce revisens
Hesterno Collum potuit circumdare Filo.*

A Hydrocele and Sarcocoele are very commonly incident to the Inhabitants of *Languedoc* and *Provence*; these Tumours are produced when the Blood, returning slowly through the spermatic Veins, stagnates in them; hence the Serum is either separated from the Blood, and a Defluxion in the Scrotum and Membranes of the Testes produced, or a fleshy and fungous Excrescence is formed by the viscid Serum; for which Reason this Disorder sometimes happens to old Men, to such as are of a melancholic Habit, or accustomed to a sedentary Life: The immoderate Use of Chestnuts, large Quantities of which are produced in *Languedoc* and *Provence*, seems to be the Cause, why their Inhabitants are, in a peculiar Manner, subject to these Disorders; for, by the frequent Use of these, the Lymph and Blood are so inspissated, as to pass slowly through the small spermatic Veins, the Situation and Direction of which are perpendicular. The Inhabitants of *France* in general are also highly subject to Fevers, not only of the intermittent, but also of the continual, malignant, putrid, slow, and hectic Kinds, which frequently prove fatal to them. The Circumstances, principally contributing to the Produc-

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tion of these Diseases, are their moist Aliments, their liberal eating of strong Soups, and autumnal Fruits; their using Food without Salt, their drinking Water copiously, and but little Wine. By such a Regimen the Blood is highly attenuated, and a large Collection of Serum accumulated; which, if not duly purged off, especially in spongy Bodies, deprived of a proper Strength of the Fibres, and exposed to southerly Winds, stagnates in the Vessels, and disposes to Fevers, Ulcers, and Putrefactions. Besides, not only the Children, but also the Adults of this Nation, are much afflicted with Worms of an uncommon Size, which Misfortune is produced by their moist Food, their liberal Use of nutritive Aliments, and their drinking large Quantities of Water.

A large and numerous Train of Disorders are *endemial* to *England*, and principally seize the Patients in the Autumn. The Inhabitants of *London*, the Metropolis of this Nation, are highly subject to Stuffings of the Head, Hoarseness, Coughs, malignant Dysenteries, Fevers, the Small-pox, and the *Fluor Albus* in the tender Sex. A cloudy Atmosphere, richly impregnated with the moist Vapours of the Sea, contributes not a little to the Generation of these Disorders. But no Disease is more fatal to them than a Consumption of the Lungs, and unseemly Defecation and Corruption of the whole Body; for by this Disorder a great Number of the *English* are cut off. Under this Misfortune the Patient's Strength becomes languid, his Respiration difficult, his Cough continual, and his Lungs, upon opening his Body after Death, are found full of scirrhous Tubercles. This Disorder is, in a great measure, produced by an Air that is thick and impregnated with the *Smoke of fossile Coals*, which, being received by the Mouth, so
corrigates

corrigates and constricts the pulmonary Vesicles, that a large Quantity of viscid Blood is easily retained in them.

This Disease, as also Inflammations of the Lungs, are more incident to the Nobility and People of Distinction and Opulence, than to the meaner Sort; because the former indulge themselves in Delicacy, Idleness, and Luxury, eat the most rich and luscious Fleshes, and drink large Quantities of generous Wines; by which Means Nature, especially in weak and spongy Habits, is rendered incapable of managing the too large Quantity of Blood, and carrying on the Secretions which ought to be made from it. In Consequence of this a large Quantity of viscid Blood is collected, and stagnates in the Lungs, which are of a soft and vascular Texture; a Circumstance which gives Rise to the above-mentioned Disorders; for a Phthisis, and most of the other Disorders to which the *English* are subject, proceed from Repletion, because the Inhabitants of this Nation generally neglect Venesection too much.

Besides the pulmonary Consumption, the Rickets is *endemial* to the *English*, especially in the Western Parts. This Disorder seizes Children, and discovers itself by rendering their Heads preternaturally large, their Flesh lax and spongy, their Abdomens turgid, their Eyes prominent, their Bodies weak and crooked. This Disorder principally arises from a weak and flaccid State of the Nerves and Membranes, a Defect of Spirits, and an unequal Distribution of the nutritious Juices. Hence it is called *Rachitis*, because its chief Seat is thought to be fixed in the Spine of the Back.

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As for the Diseases peculiar and *endemial* to the several Parts of *Italy*. At *Naples*, besides the Venereal Disorder, which is not accounted a Disease, except when it discovers itself by Gummata, the *endemial* Diseases are red Spots on the Skin, sometimes disappearing, and then breaking out afresh. Any other Species of Scurvy is unknown in *Italy*, because this Disorder is the Progeny of an impure and saline Lymph. *Bartholine*, in *Cent. 5. Ep. 19.* ascribes these Spots to their Houses and Aliments. The former of these are lofty and dark, and the latter consist of Beef, Pork, and Cabbage, which the Inhabitants feed on in large Quantities.

The *Venetians* are subject to the Hemorrhoids and their several Consequences, such as painful, blind Hemorrhoids, Varices, and Fici, for which Reason Leeches are so much used by them, that they frequently contract Fistulas of the Anus. The Cause of these Disorders is justly ascribed to the liberal Use of *Italian Wine*. And in general, we may observe, that the Inhabitants of those Countries in which Wines, especially of the sweet Kind, are spontaneously produced, are more subject to the bleeding Hemorrhoids, than those who live in barren Climates, in which only Water and Malt-liquors are drank; for Wines of this Kind generate large Quantities of Blood, and easily throw it into Organs, or preternatural Commotions. Hence, in consequence of the Distention of the Vessels, the Blood moves slowly through all the abdominal Viscera, and by that Means regurgitates to the Veins of the Anus, through which its long and perpendicular Ascent is very difficult.

Semi-tertian Fevers are highly *endemial* at *Rome*, as was long ago observed by *Galen*, (*Lib. 1. de Morb. Vulg. Comm. 2.*) who lived in great Splendor and Glory at *Rome*, near the *Forum of Agrippa*, which
now

now leads to the *Pantheon*. *Fontanus* (*Schol. d Do - don. de Semitertiano*) justly observes, “ That the “ Stomach, its nervous Parts especially, and the “ Liver, are greatly injured by this Fever :” For which Reason it is deservedly classed among the mortal Distempers. This Disorder generally degenerates into a Hæctic and Dropsy, by reason of the Obstructions with which it is accompanied, as *Hippocrates* observes, in the first Section of the third Book of his *Epidemic*.

This Species of Fever is principally incident to the Priests, Nobility, Courtiers, young Persons, and such as lead an idle and luxurious Life, and live in a hot Climate; for which Reason it is also *endemial* in *Ethiopia*. In Persons who lead idle and unactive Lives, all rich and delicate Aliments generate large Quantities of Blood, which, producing Infarctions and Obstructions of the Viscera, lay a Foundation for various terrible Distempers: *Aesclepiades* (in the tenth Chapter of the second Book of *Cælius Aurelianus*) informs us, that, at *Rome*, Fevers accompanied with an Oppression of Body and Mind, as also Lethargies, are very frequent: For the Waters of this City, excepting those conveyed into it by *Mæcenæ*s through Aqueducts, are far from being of a salutary Quality. Nor is *Rome*, in the Summer-time, blessed with a very wholesome Air, because it is built on the Ruins of the antient City, in which, for various Purposes, the antient *Romans* prepared a large Number of spacious and sumptuous Caves: If, therefore, at any time the *Tyber* overflows her Banks, and enters these Caves, the Air must of course be of an insalubrious Quality, in consequence of the Vapours with which it is impregnated. Besides, in these Caverns large Numbers of Serpents are found; and the City, in consequence of its Streets not being paved, is so

dusty in the *Dog-days*, that the Inhabitants cannot come abroad, on account of the Dust and Swarms of Flies, which undoubtedly come from the Caverns above-mentioned.

The Epilepsy is very familiar and *endemial* to the Inhabitants of *Tuscany*; for which Reason they cauterize the Heads of new-born Children, according to *Malthasar de Vias, in Sylvia Regia*. This Custom (according to *Hieronymus Mercurialis, Lib. II. Var. Lect. c. 2.*) also prevailed among the ancient Inhabitants of *Tuscany* and *Lybia*. The modern *Arabian* Physicians, also, with uncommon Success, use the actual Cautery, for violent and otherwise incurable Disorders of the Head; such as Apoplexies, Hemicranias, and Lethargies, applying the Iron to what Part of the Head they think will best answer their Intention.

The Inhabitants of *Apulia* are, according to *Baglivi*, highly subject to burning Fevers, Pleurifies, and other inflammatory Disorders, which in a great measure draw their Origin from that Redundance of Blood, which is generated by the high Living of the Inhabitants; for here the Soil is incredibly fertile, and large Quantities of Flesh is eaten by the Natives. Here, also, the Wines are black, fragrant, and rich, and the Air so intensely hot, as not only to render the Inhabitants highly impatient and uneasy, but very frequently delirious.

The Bite of the Tarantula is also peculiar to *Apulia*. The Wound inflicted by this Animal is most terrible in the Summer-time, especially at the Season when these Animals copulate: The Wound is succeeded by an uneasy Sensation about the Heart, a Privation of Voice, an Oppression of the Pulse, a Blackness of the Extremities, and a cold Sweat, all which Symptoms arise from a violent Constriction of the nervous Parts; for the Poison
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of the Tarantula consists of a highly active, pernicious, and quick-moving Substance, like Fire; which, by penetrating into the innermost Recesses of the Body, excites violent spasmodic Motions in the nervous System. *Baglivi* (in his *Dissert. de Tarantula*) has wrote in a highly rational and satisfactory Manner on this Subject. *It is no uncommon Thing for Men treating on medicinal Subjects, to take Things for granted, and write very rationally upon such Supposition; of this the Fable of the Tarantula is an Instance. See TARANTULA.*

In *Spain* the Inhabitants are highly subject to hypocondriac Melancholy, which may be justly ascribed to their indolent and unactive Turn, their sedentary Lives, and profound Speculations: Besides, they indulge themselves too soon in Venery, and drink but little Wine: Hence the more subtile Part of the Blood being carried off, what remains is of a thick and earthy Nature, and consequently produces Disorders of the Hypochondria, and extravagant Whims and Phantasms in the Brain. Add to this, that in the Men the Hemorrhoids, and in the Women immoderate Discharges of the Menstrues, are very frequent, because the abdominal Viscera are stuffed with a thick and foeculent Blood. Hence the free and equable Distribution of the Blood is prevented, by which means it impetuously flows into the extreme Parts, stagnates in them, and bursts the Vessels in which it was contained. Most of their Nobility, and those in opulent Circumstances, are cut off by Apoplexies, which, without doubt, arise from a Redundance of Blood generated by their delicate Manner of Living, their drinking rich and generous Wines, and their daily Use of Chocolate. But it is remarkable, that the Itch and Scurvy are not known in *Spain*, tho' they daily eat large Quantities of fresh Pork; for the

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the Air of that Kingdom is highly subtile and penetrating, their Water pure and light, and the Food used without Salt. In consequence therefore of a free Perspiration, and an open and unobstructed State of the cutaneous Pores, the coarse and thick Particles of the Serum are exhaled, which, when stagnating in the Pores and Glands of the Skin, produce those Eruptions that appear in the Itch and Scurvy.

We now come to consider the Disorders *endemial* to the *United Provinces*, and especially *Holland*, where the Scurvy is very frequent, and draws its Origin partly from their strong Food, Sea-fishes, and smoaked Flesh, and partly from their dense and moist Air, together with their bad Water. Besides the Scurvy, the Inhabitants of these Provinces are highly subject to the Stone of the Kidneys and Bladder. Nor are these Disorders more frequent in any Part, or more incident to Persons of all Ages than in the *Netherlands*; for which Reason the Frequency of the Operation among them produces the best Lithotomists to be met with any where. The Cause of this Misfortune is justly to be ascribed to their immoderate Use of Milk meats, Cheese and Acids, which are daily used at their Tables. But how much the Abuse of Milk-meats and Acids contributes to the Production of stony Concretions is well enough known to Physicians.

Among those who inhabit the Coasts of the *Baltick Sea*, such as the *Danes*, the *Swedes*, the *Norwegians*, the *Pomeranians*, the *Livonians*, and the Inhabitants of *Courland*, the Scurvy is an highly common and *endemial* Disease, discovering itself by Pains of the Joints, Weariness, and Torpor of the Members, Eruptions of the Skin, putrid Gums, and Tumours. Where the Air is fine and hot, where

where strong and salt Aliments are not used, this Disorder is unknown; hence it is scarcely ever seen through all *Greece*, *Italy*, *Spain*, and even *France*, except in some Parts of *Provence* and *Languedoc*, situated near the Sea, where the Waters are impure, saltish, and marshy. It is, also, sometimes found in *Ragusa*, which produces Waters of the same bad Qualities. The Scurvy is, therefore, frequent and *endemial* to these People, and to the Inhabitants of those Northern Regions, which lie between the fifty-fifth Degree of Latitude and the North Pole, on account of their dense, cold, and moist Air; their strong and salt Aliments, their Use of Sea-fish, and their coarse impure Water; by means of which the Blood is rendered earthy and fixed, deprived of its mild, balsamic, and sulphureous Parts, and consequently disposed to Obstructions and Corruption. Besides, it is not to be doubted, but, in former Ages, this Disorder raged in these Countries; though this Opinion cannot be confirmed by the Testimonies of Authors, because no Histories of these People are now extant; since the antient Physicians of *Greece*, *Arabia*, and *Italy*, only wrote upon the Diseases, peculiar to their respective Countries, without touching upon those incident to the Inhabitants of other Nations. But that in these Countries the Scurvy is generated by the Sea Air, the gross Food, Idleness, and the impure Waters used by the Inhabitants, is sufficiently obvious from Sailors, who, when they visit these Countries, generally bring back this Disease with them, though they are Natives of other Kingdoms, and were before free from it. It is also to be observed, that the Inhabitants of these Countries are highly subject to the Gout, the Palsy, and the Dropsy, which are the Effects of a Scurvy.

But what is very surprising is, that, besides the Scurvy, Fevers are very common and *endemial* in *Denmark*, *Sweden*, and *Livonia*; whereas in *Norway*, *Iceland*, *Lapland*, and *Finland*, they are scarcely known. *Scheffer*, in the seventh Chapter of his *Description of Lapland*, tells us, That the Inhabitants are blessed with an excellent State of Health, and are Strangers to most Diseases; and that neither Plague, nor acute and burning Fevers are found among them, which we shall endeavour to account for in the following Manner. It is sufficiently known, that Plagues arise most generally, and rage most violent in hot and sultry Climates; for the Plague is a highly penetrating Putrefaction, generated and promoted by an incredibly active, hot, intestine, and moist kind of Motion; for this Reason in intensely cold Climates, where the Fluids are concentrated, quiet, and destitute of a brisk and active intestine Motion, Putrefaction cannot be produced, nor consequently the Plague excited and propagated.

As for Fevers, they are no more than intense Agitations and Commotions of the Blood and Humours, arising from an increased Tone of the moving Fibres and Muscles, especially of the Heart and Arteries. Hence the more sensible and ready to receive the Impressions of Motion the Fibres are, the greater Propensity to Fevers is by that very Means produced; and this is the Reason, why Persons of choleric Constitutions, young Men, and such as live in hot Climates, are more obnoxious to Fevers, than phlegmatic old Persons, People of melancholic Habits, and such as live in cold Countries; because the Fibres of these last mentioned are more tense, immoveable, constricted and insensible. Hence the Reason is obvious, why in *Lapland*, *Iceland*, and *Norway*, Fevers are not observed;

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for the Fibres of the Inhabitants, in consequence of their tense and rigid State, are less susceptible of those Spasms and tremulous Motions, requisite for the Production both of febrile Shiverings or Heat.

From what has been said, the Reason is also obvious, why, in checking and suppressing Fevers, the internal Use of Astringents is highly efficacious. Such as the *Peruvian Bark*, Preparations of Vitriol, Steel, and Alum, together with the styptic Roots of Vegetables; as also why Astringents and Corroboratives, prepared, for Instance, of a Mixture of Alum, Turpentine, Rue and Vinegar, and applied by way of Plaister to the Wrists of the Hands, and Soles of the Feet, are highly efficacious in removing the febrile Paroxysms, because all these Substances render the Fibres highly tense and rigid.

Besides, according to *Scheffer*, among the Inhabitants of *Lapland*, *Finland* and *Norway*, Lippitude and Inflammations of the Eyes are very frequent, and sometimes proceed so far as to induce a total Blindness. The Cause of this Misfortune is, their being obliged, from their Infancy, to live in Smoak, of which their Cottages are full, both Winter and Summer: Now it is well known how prejudicial to the Eyes Smoke must necessarily be. Further Peripneumonies, Pains of the Back and Head are *endemial* to these Countries, and draw their Origin from a coarse and viscid Blood, which, by means of the external Cold, is easily stopped in the small Tubes of the Muscles, and minute Vessels of the Lungs. Nor is it to be forgot, that, in all the Northern Countries, a Sphacelus is very readily generated, in consequence of the slightest external Injury done to the Parts. The Reason of this is sufficiently obvious; for a Sphacelus arises from a

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Destruction of the Circulation of the Blood in any Member or Part. Now the Circulation of the Blood is hindered and destroyed by its being thick, coarse, earthy, and destitute of an active and spirituous Principle, which the Blood of these People, and of all scorbutic Patients is.

Other Disorders are also *endemial* to the Inhabitants of the Northern Countries, among whom we may class the *Russians* and *Tartars*, who are highly subject to Chilblains, Ulcers, and Pustules, arising from the excessive Cold, which is sometimes so very intense, as to make their Noses and Ears drop off; for the Cold freezes the Fluids in the Parts exposed, by which means they become flaccid, and almost mortified; and hence arise the Stagnations of the Humours, together with the Chilblains and Sphaculations subsequent to them. It is a common Remedy among them, to rub the Part pinched by the Cold with Snow, till the Numbness ceases, and Sensation returns; after which they gradually advance it to the Fire, which if done suddenly, and without these Precautions, is productive of very terrible Consequences. It is also to be observed, that these People are of a small Stature, and their Animals, even their Oxen, without Horns, and scarce so large as an Ass, by reason of the intense and pinching Cold, which hinders the due and equal Distribution of the nutritious Juices. This is observed by *Hippocrates*, in his *Treatise de Aere, Locis, & Aquis*.

In *Poland* and *Lithuania* the Disorder, called *Plica Polonica*, is *endemial*, and well known. This consists in a preternatural Bulk of the Hairs, which, being firmly conglutinated and wrapt up in inextricable Knots, afford a very monstrous and unseemly Spectacle. When these are cut, the Blood is discharged from them, the Head racked with Pain, the Sight impaired, and the Patient's Life frequently

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endangered. This Misfortune is principally incident to the *Jews*, who live in these Countries. Though it seems difficult to account for this Disorder, and assign its true Causes, we shall nevertheless make an Attempt of this Kind. What therefore contributes not a little to its Production is, the sordid and nasty Manner of Life to which these People are addicted; for they rarely comb their Hairs, sleep in low and moist Rooms, and drink large Quantities of Brandy. The Waters, also, concur and assist in the Generation of this Disorder. Hence *Gebema*, in *Epist. ad Bontekoe de Plica Polonica*, is partly of Opinion, that the Cause of this Disease is lodged in some particular Waters of *Poland*, which, if either drank, or used for washing the Body, produce the *Plica*; which he confirms by the Fate of two Soldiers, who, when intending to wash their Bodies, had scarce immersed their Heads in the Water of a certain Pond, before their Hairs were twisted, and contracted into many Folds. Besides these Causes, we suppose an hereditary Fault conveyed from the Parents, and which consists in too great a Bulk of the Pores, and bulbous Hairs under the Skin of the Head. Hence the thick, glutinous, and nutritious Juice, produced by their coarse Aliments, and impure Waters, is, by the Heat excited by their drinking Brandy, forced into the Cavities of the Hairs, and, sweating through their Pores, produces this terrible Disorder.

The Inhabitants of *Hungary*, by the Antients called *Pannonia*, and *Illyricum*, are generally much afflicted with the Gout and arthritic Disorders, arising from their delicate Living, and the too liberal Use of strong and spirituous Wines: This Country, also, abounds with such Swarms of Lice, that the Soldiers and common People cannot, without the greatest Difficulty, secure themselves from

from this Species of Vermine. The hot and moist Nature of the Soil contributes not a little to the Production of these Disorders ; for, as *Conringius*, in his *Thesaur. Rerum Public.* informs us, almost all *Hungary*, and especially the *Inferior Hungary*, is warmed by subterraneous Fires ; which is certain from this, that, when Ditches are digged near the *Drave*, or the *Danube*, the Heat of them is so great, as to produce an Eruption of Sweat, as if one was in a Bagnio. And, because the Country is at the same time moist and watery, Exhalations are continually raised in it, by which Means the Air is rendered less wholesome, generates Diseases of the putrid Kind, and favours the Production of Lice. From the same Source proceeds what is commonly called the *Hungarian Fever*, which is attended with a violent Pain of the Head, obstinate Watching, a Cardialgia, Delirium, and an Angina. Soldiers, who lie on the Ground, and eat irregularly, are highly subject to this Species of Fever. Besides, in this Kingdom the Heat is very intense during the Day, and the Cold very pinching during the Night : Hence, Perspiration being obstructed, the Blood must of course be disposed to Corruption. There is also another Disease peculiar to the *Hungarians*, which they call *Cremor*, and with which, when they are seized in consequence of immoderate Eating and Drinking, they immediately fall a rubbing the Palms of their Hands, and complain of a Pain in them : But this Disorder immediately disappears, upon the Patient's taking a Dram of any Cordial-water. They are also highly subject to another Disorder, which they call *Strint*, and by which they mean every Tumour or Inflammation, whether in the Mouth, the Throat, or the Anus. *Ephim. Nat. Curios. Decad. 1. Anno 1.*

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As for *Germany*, which may be justly divided into South and North; in the latter of these the Scurvy, and all the Disorders subsequent to it are *endemial*; nor is there almost any chronical Disorder which has not something of a Scurvy complicated with it. This holds particularly true with respect to *Upper Germany*, and *Westphalia*, where the Inhabitants are fond of living, like the *Dutch*, upon Herrings, Bacon, Stock-fish, Oysters, and all kinds of Sea-fish.

In *Westphalia* malignant, pestilential Fevers are very rarely to be found, but Peripneumonies and Itches are *endemial* to the Country; because the Blood of its Inhabitants is too thick and coarse, resembling that generated by the liberal Use of Bacon, small Beer, coarse Bread, commonly called *Bonpou-nickel*, and the immoderate Use of Brandy. This thick and coarse Blood, stagnating in the Lungs, produces violent Inflammations, and, as it is richly impregnated with sordid and recrementitious Parts, occasions the Itch. To these Disorders such of the Inhabitants are most exposed as are addicted to Idleness, and live without due Exercise and Motion, which are excellent Remedies, not only for the Itch, but also for the Scurvy.

The Inhabitants of *Holstein* do not live long, because their rich and delicate Diet, in consequence of the Fertility of their Soil, generates a Redundance of Blood. But this is a marshy Country, especially *Dilmars*, where Waters frequently stagnate in the Fields, which are exposed to frequent Inundations of the Sea; for which Reason pestilential and malignant Fevers are *endemial*; and cut off large Numbers of the Inhabitants.

In the South Parts of *Germany*, such as *Silesia*, *Franconia*, *Austria*, and *Swabia*, where the Inhabitants use a more tender Food, and drink Wine,

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Consumptions, Gouts, burning Fevers, Hemorrhages, and Inflammations, are frequently observed.

In *Misnia*, especially at *Leipsic*, a Disease of a singular Nature, and absolutely unknown to other Countries, is highly familiar to the Inhabitants, especially to Women in Child-bed, to whom it often proves fatal. It is divided into the red and white Kind, in which either red or white Spots appear on the Skin, like the Bites of Gnats. It is accompanied with a Roughness and Itching of the Skin, and preceded by a Fever attended with great Uneasiness: Sometimes this Disorder is complicated with those of the pestilential Kind, the Measles, the Small-pox, and continued Fevers; and when, in the Decline of these Disorders, whilst the Patient seems secure, this Disease appears, it prognosticates an unlucky Termination. It is the Offspring of a putrid and vapid Serum, and is, in all Probability, owing to the nice and delicate Manner of Living of the Inhabitants, who are fond of Ease, and great Lovers of Sweet-meats, and such Delicacies; for it is not to be doubted, but by these Means the Serum is rendered highly impure and viscid. And since pregnant Women are generally plethoric and cacochymic, Aliments of this kind must of course produce more terrible Effects upon them, than upon other Persons in different Circumstances. The Children of this Country are, also, frequently seized with a Tabes, or Consumption, from Worms which breed in the Flesh, that they appear like so many Shades, or Phantoms. Though those who labour under this Disorder are commonly thought to be under the Influence of Witchcraft, yet such as have enquired more narrowly into this Disorder, have observed Worms like black Hairs, or Cords, lodged under the Skin. These Animals are usually called *Comedones*;

or *Gluttons*, because they intercept and devour the nutritive Juices in their Distribution. When the Skin is rubbed with Honey, either in a Bath, or any warm Place, they come out; but when it is contracted, and braced up by Cold, they keep concealed within: The Reader, who desires to know more of this Disease, may consult *Sennertus, lib. 5. Praxis, part. 1. cap. 24.* Besides, it is to be observed, that in no Country are the Inhabitants more bigotted and superstitious, since they ascribe Diseases, especially convulsive Atrophies, arising from natural Causes, such as a Scurvy, or Worms, to Incantations, and the Influence of the Devil. The same Degree of Superstition also infatuates the Minds of the *Hungarians*.

In *Greece, Macedon, and Thrace*, there are few Physicians, because few Diseases, especially of the chronical Kind; for their pure Air, and limpid Water, prevent Obstructions, Indurations of the Viscera, and Infractions of the Glands. A Phrenitis, acute, however, and other Fevers, together with Dysenteries, are very frequent among the Inhabitants of these Countries; and their immoderate Use of excellent Summer-fruits, together with rich and luscious Wines, contribute not a little to the Production of these Disorders.

In the Islands of the *Archipelago*, the Epilepsy is highly frequent and *endemial*, as *Hippocrates* has also informed us, in his Book *de Morbo Sacro*.

At *Constantinople* a violent Plague rages every Year, beginning in the Spring, and ending in the cold Months of the Autumn, *October* and *November*. Various Causes concur to the Production of this Calamity, such as the Largeness of the City, which contains an incredible Number of Inhabitants, and is almost every where so surrounded by the Sea, that the Waves beat upon its Walls. The
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Air, also, is impregnated with moist and agueous Exhalations, and the Climate is excessively hot. Now a moist and hot Air is productive of Putrefaction, and consequently of the Plague, which, according to all Physicians, consists of a Putrefaction of the moist, active, and penetrating Kind. To these Causes may be added the execrable Filthiness of the Inhabitants, who throw out large Quantities of Ordure and Excrements in the Streets. Hence the Air must be infected, and give Birth to a large Number of Diseases. Besides, their Abstinence from Wine, which is forbid them by *Mahomet*, their great Prophet, and the Founder of their Faith, prepares, as it were, and disposes their Bodies to Corruption ; for certainly there is not a more powerful Alexipharmic, or a more effectual Resister of Putrefaction, than Wine moderately used. Another concurring and additional Cause, is their daily Use of emollient Baths, which, as is sufficiently obvious, relax the Fibres, moisten the Body too much, and destroy the native Energy and Virtue of the Blood. When, therefore, Bodies disposed to Corruption, and prepared for the Reception of the Contagion, are exposed to the Effluvia productive of this Disorder, we may easily conceive how it must be propagated by this Means. The same Reasons are to be assigned, why the Plague rages almost continually at *Smyrna* and *Aleppo*. *Hieronymus Mercurialis*, in the twenty-fourth Chapter of his fifth Book, informs us, from *Nicephorus Callistus*, That the Inhabitants of *Constantinople*, are continually racked with arthritic Disorders ; to which, as we are informed in the same Passage, the *Athenians* are also highly subject. But it is pretty surprizing, that the Venereal Disease is not so much as known in *Constantinople*, though the Inhabitants are above measure addicted to

Venery :

Venery: This is to be accounted for from a Custom of the Women, the principal Propagators, of this Infection, who, after the Embraces of a Man carefully wash the Parts, and wipe away the Sordes, which might give Birth to this Disease. The Prostitutes among the Antients used the same Practice; as we may justly infer from the fiftieth Epigram of the second Book of *Martial*.

We now come to *Asia*, beginning with the numerous and scattered Kingdoms of the *Indies*, where there is an inconceivable Variety of *endemial* Disorders; among which that called *Berberi* is very remarkable and troublesome: This is a Species of Palsey, or Trembling; depraving Sensation and Motion, and inducing a Tremor, not only on the Hands and Feet, but sometimes also on the whole Body. The Cause of this Disorder is lodged in the Nerves, which are stuffed with a tough and viscid Humour, produced, according to some Authors, by the uncommon Inequalities of the Air, which in the Day-time is intensely scorching, and during the Night excessively cold; for at this Time the Vapours, raised by the Heat of the Day, fall from the first Region of the Atmosphere, and prove highly injurious to such as lie in the open Air, without any Coverings, because the Cold, by entering deeply into the Pores, previously opened and enlarged by the Heat of the Day, obstructs the Emulsories, and inspissates the Serum; by which Means the Strength, Elasticity, and Tone of the Fibres and Muscles are destroyed.

The Inhabitants of these Kingdoms are, also, frequently subject to a Disease, by them called *Mordchi*, which is no more than a disordered Stomach. The perpetual Heat, the copious Sweats excited by it, and the supervening Cold, very much weaken the Stomach: Now if the Inhabitants

tants should either eat or drink too liberally, especially at Night, the Concoction of their Aliments must of course be unduly carried on; for which Reason Diarrhæas are not only very frequent, but also with great Difficulty cured among them.

They are also subject to spasmodic Cholicks, because they indulge themselves in Gluttony, and the immoderate Use of Brandy; but such of them as drink Water are exempted from this Misfortune.

A singular and surprising Kind of spasmodic Contraction is also highly incident to the Inhabitants of these Kingdoms, by which the Patient is of a sudden rendered stiff and inflexible as a Statue, whilst the Muscles are involuntarily drawn either to the anterior or posterior Part of the Body. The Inhabitants of these Countries are, also, frequently seized with a Disorder, called the *Spasmus Canicus*, which discovers itself by a harsh and uncouth Noise, made by the Striking of the Teeth against each other. *Bontius*, in his Treatise *de Medicina Indorum*, has treated of this Disease at great Length: This Disorder arises from a Redundance of bilious and sulphureous Blood, because it is cured by Venesection, and Preparations of Nitre.

In these Regions a Diarrhæa, which generally proves mortal, is *endemial*. This Disorder is to be ascribed to the *Indian Fruit*, which, if not cautiously eaten with Rice or Bread, for the most part produce it; just as, in *France* and *Spain*, the Eating large Quantities of Grapes produces a Dysentery. *Bontius*, as the principal Cause of this Disorder, assigns their immoderate Use of a hot Liquor they call *Arrac*, and which the *Chinese* prepare of Rice mixed with the *Holothuria* (a Sort of Zoophite floating in the Sea :) This *Holothuria* is of so hot and acrid a Nature, that it exulcerates and raises Blisters

sters on the Skin, when applied to it. It is also to be observed, that contagious, malignant Fevers are very rarely, and the Plague never, observed in the *Indies*: But the Small-pox is there *Endemial* and contagious. Simple and double Tertians are here very frequent, during which Disorders the Patient is never allowed the Use of Flesh-broths, or Eggs. Their fine and temperate Air prevents the Plague, and other Diseases arising from Putrefaction; but intermittent Fevers are produced among them by an Obstruction of Perspiration, by means of the nocturnal Cold, especially after any Error with respect to Regimen.

In the Island of *Ceylon*, and especially in the Kingdom *Jasnapatnam*, in the Winter-time, Fevers, and Swellings of the Abdomen, arising from saline, crude, and calcareous Waters are very frequent. Besides, their Winter itself is very dangerous, because it obstructs Perspiration.

Among the Inhabitants of *Malabar*, the Small-pox rages with uncommon Fury; and *Boldæus*, in his Description of the Islands of *Ceylon* and *Malabar*, accounts for the Violence and Malignity of this Disorder from their wet Seasons, and their Use of autumnal Fruits.

Among the Inhabitants of *China* and *Japan*, Disorders of the Eyes, such as Lippitude, Cataracts, and Blindness, are very frequent; and arise from the large Quantities of hot boiled Rice, which they daily use instead of Bread; for by this Means are generated a viscid Lymph, and a thick Blood, which, circulating with Difficulty in the capillary Vessels, at last stagnates and produces the above mentioned Disorders. Thus we know from Experience, that Horses, too constantly fed with Oats and Barley, very easily become blind, especially after severe Labour, or much Running.

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Among the *Chinese* the Gout and arthritic Disorders are very rarely found, perhaps because they continually use warm Liquors, which keep the Emunctories open, promote Perspiration, and eliminate from the Body, the impure, tartareous, and scorbutic Salts, which produce these Disorders.

In the Island of *Formosa*, the Air of which is hot and moist, the Plague is *Endemial*, and highly dangerous. During the Time it rages, the Inhabitants betake themselves to high and inaccessible Mountains, where the Air is thought to be purer than in the Valleys; drink the purest Waters they can find; eat nothing but Plants and Fruits; and do not return, to their Habitations, till the noxious Quality of the Air is corrected, and the Plague removed: *Geograp. Psalmanaazaar, Descrip. de l'Isle de Formosa en Asie, Cap. 27.* ^{the whole is a Fiction.}

From what has been said it is sufficiently obvious, that a hot and vapid Atmosphere, not duly fanned and purged by Winds, excites a pestilential Corruption; which, on the other hand, is most effectually resisted and prevented, by a serene and pure Air. It is surprising that, according to the same Author, Gouts and intermittent Fevers are absolutely unknown in this Island, which perhaps is owing to the uncommon Temperance of the Inhabitants, and their Aversion to Gluttony and Luxury, from which these Disorders arise.

In this Island also the Small-pox are so *Endemial* and universal, that scarce any one escapes them. For the most part they seize Children about the third Year of their Age, but in so slight and gentle a Manner as rarely to prove fatal. Among the Inhabitants of this Island the Small-pox are sometimes succeeded by a Redness diffused over the whole Body, and by the Inhabitants called *Schiptio*. This Disorder is far more dangerous than the Small-pox

pox themselves, since 'tis attended with a violent Heat, and is so uneasy to the Patients, that, unless duly cured, their Lives are often exposed to the most imminent Danger.

The Women of this Island have more difficult and dangerous Labours than the *Europeans*, because they never use any Exercise, but, like the antient *Greek Women*, keep themselves constantly shut up in the most retired Parts of their Houses. The venereal Disease is here absolutely unknown, because, among the Inhabitants Polygamy is allowed and Adultery severely punished.

At Goa, the principally Colony of the *Portuguese* in the *Indies*, the Inhabitants are much subject to a Disorder, called *Mordexyn*, which seizes the Patient suddenly, and unexpectedly, is attended with a Nausea, and continually Vomiting, and often proves fatal.

Here the *Lues Venerea*, is *endemial*, universal, and not branded with that Infamy which other Nations throw upon it. Many of the Inhabitants are also afflicted with the Stone and Hernias, especially the Men, because they constantly drink Water, are highly lascivious, and pamper themselves.

Many of the Inhabitants of this Colony have their Abdomens so monstrously large and prominent, that they are on that account ridiculed and scoffed at by such of their Neighbours as are free from this Deformity, which arises from the intemperate Use of Sugar and Sweet-meats, and from their generally sitting naked in the Porches of their Houses after Dinner. This Subject is handled at greater Length by *Linschout*.

The Inhabitants of *Armenia* are violently afflicted with Pains of the Eyes, which seem to arise from their being confined, through the whole Winter, which in their Country lasts eight Months, to the

Smoke of their Houses, which have no Conveyances for carrying it off. This Smoke is principally hurtful to their Eyes, in which it produces Inflammations, Catarrhs, and other Disorders according to *Carolus de Piacenzæ*, Missionary to *Congo*. It is also to be observed, that there are few or no Physicians in *Armenia*, and, if at any Time Men of that Profession arrive among them, they have uncommon Honour and Veneration paid them. The *Armenians* are also much afflicted with the Gout, because they drink more Wine than Water.

Among the *Persians* the Gout and Stone are hardly known, because the Natives are, by the *Mahometan* Laws, enjoined to abstain from Wine; but that the Stone is generated by the immoderate Use of Wine is sufficiently obvious, from the State of those who live in Countries where Wine abounds, such as the Inhabitants of the Brinks of the *Rhine*, the *Franconians*, *Austrians*, and some others. In the Islands of *Laar* and *Gamro* a Disorder, known by the Name of *Dracunculi*, is frequently found; but of this we shall afterwards treat.

In *Tartary* the Inhabitants remain blind for some Days after their Birth, but this Blindness is only produced by a preternatural Extension and Relaxation of the Muscles of the superior Eye-lid; that this Cause being removed, the Blindness is cured.

We now proceed to *Africa*, where we shall first treat of *Ægypt*, the Endemial Diseases of which are the Itch, Inflammations of the Eyes, and Blindness. The Inhabitants of *Alexandria* are in Autumn afflicted with various malignant Fevers and in the Winter with Inflammations of the Eyes which also some times continue throughout the whole

whole Year. An highly contagious Species of Small-Pox, Hydroceles, Pneumatocelles, and hypocondriac Melancholy, are also very frequent at *Alexandria*. *Dapportus*, the best Writer concerning *Africa*, justly ascribes these Disorders to the squalid intemperate Air, impregnated with the Exhalations of the River *Nile*, to the stagnant and impure Waters of their Cisterns, their drinking the turbid Waters of the *Nile*, and their eating sweet crude Fruits, and their Use of Baths. To these Causes may be added, their excessive and long continued Heat; which, being succeeded by the Cold of the Night, weakens the Stomachs of the Inhabitants, and, by destroying the spirituous Quality of the Blood, disposes it to Corruption. It is to be observed, that in *Ægypt* the Plague is rarely produced by the peccant Quality of the Air, but rather by the Inundations of the *Nile*, for, as this River for a long time covers the Ground, the whole Country becomes marshy, and resembles, as it were, a stagnant Sea; which, by the Blowing of southerly Winds, and the intense Heat of the Sun, becomes putrid, and excites the Plague: Besides, the Air, which is naturally hot, becoming moist by the Overflowing of the *Nile*, contributes not a little to the Production of this Calamity.

According to *Prosper Alpinus, de Medicina Ægyptiorum, lib. 1. cap. 4.* the *Elephantiasis* is familiar and endemial to the *Ægyptians*; as also to the *Arabians*, and Inhabitants of *Java*; this Disorder is produced by their uncommon Food, especially Asses-flesh, and their drinking the turbid Waters of the *Nile*. Of this Opinion was *Galen*, in his first Book, *de Aliment. Facultat.* *Avicenna* was of the same Sentiment; as also *Lucretius*, as appears from the following Lines of his sixth Book:

*Est Elephas Morbus, Qui propter Flumina Nili
Gignitur Ægypto in Medio neque præterea unquam.*

In *Æthiopia* the Women are blessed with peculiarly easy and happy Labours, and are generally delivered on their Knees, as we are informed by *Ludolphus*, in his *Hist. Æthiop.* *Borlæus* (in his Book *de Rebus in Brasilia Gestis*,) mentions the like Hardiness and Strength in the *Brasilian* Women; who, as he informs us, “do not keep themselves
“ up for five or six Weeks after Labour, like the
“ *European* Women, but set about their ordinary
“ Business next Day after their Delivery, though
“ their Bodies, however firm and healthy, are yet
“ very small.” I have often heard and read that in *Batavia* the Women immediately after their Delivery go into running Water, and wash both themselves and their Children, without any Danger to either.

The Inhabitants of some Parts of *Guinea* are highly subject to have Worms bred in most Parts of their Bodies; but this Disorder is more severe upon the Natives than the Inhabitants of other Nations, and sometimes rages so violently as to seize Mariners when only sailing by the Places, to which it is peculiar. It begins with an Itching of the Skin, partly in the Arms and Feet. and partly in the more fat and muscular Parts of the Body. Soon after appears a Pustule sometimes of the Bulk of a Pea, and at other times as large as three. This Pustule is not broken by the Worm itself, which must be cut out by some skilful Operator. When the Pustule is laid open there appear two Hairs, which, as they are white, and placed on the Head of the Worm, are called its Beard. The

Pustule itself is filled with Water, and the Worm is to be extracted from it in the Morning or Evening. If it is lodged in a fat Place of the Body, and some Part of it appears without the Pustule, it may often be all extracted at one time. These Worms are often an Ell long, as white as Snow, cold to the Touch, though just extracted from warm Flesh, and somewhat thicker than a pretty large Thread. If they are lodged in the Legs and Feet, they are so interwoven with the Veins and Muscles, that they cannot all be extracted at once, but must be taken away by Pieces; by which means large Swellings and Collections of Matter are formed under the Skin. In order to remove these Fontanels must be made, or a Discharge procured to the Pus in some other Manner, by which means many Patients contract not only Disorders of the Feet, but also a total Lameness. *Demmerfan. Itin. Indic. Plutarch,* in the ninth Chapter of his *Symposiacs*, makes mention of this Disorder in the following Words: “According to *Agathorclides*, those who live near
 “the *Red Sea*, are affected with very surprizing
 “and uncommon Symptoms; since, in some Parts
 “of their Bodies, a Species of small Worms,
 “called *Dracontia*, are formed.” These eat through their Legs and Arms, and look about them, but when touched retire, and hide themselves; when they are wrapped up and intangled in the Muscles, they excite intolerable Phlegmons. Concerning these the Reader may see more in *Welschius’s Dissertat. de Vena Medinensi*, in *Ludolf’s Hist. Æthiop.* and in *Hieronymus Mercurialis, lib. 4. cap. 40.*

Though to assign the true and genuine Cause of these *Dracontia*, or *Dracunculi*, is no easy Task, we shall never the less attempt it as briefly as we can. This Disorder, then, in all Probability,

arises from the Corruption of the Waters ; for, as we are informed by *Piso*, under the *Æquator*, and in excessively hot Places, the Waters, especially of the stagnant Kind, abound with Worms of all Sorts, which are cherished and kept alive by the Heat of the Sun. Hence it is not to be doubted, but, when those Waters are either greedily drank, or even when, after excessive Heat, the Pores being opened, the Feet are washed in them, the Seed of these Animals slips into the Interstices between the Muscles and the Skin, where, remaining without any Annoyance, it is cherished and nourished by the moist and temperate Heat of the Body. In *Europe*, such Worms are frequently found under the Skins in Calves, Deer, and other Animals between the Muscles and the Skin, which latter they corrode so far as to render it totally pervious ; but this Disorder is principally incident to young Animals, which they extenuate and evacuate in a very surprizing Manner.

La Hontan (in his *Nouveau Voyage dans l'Amerique Septentrionale*, Tom. 2.) informs us, that the *Americans* are of Constitutions so sound and robust, that they are rarely exposed to the Shocks of any Disorder ; among them Palseys, the Stone, and Dropsies are not so much as known. Such an uncommon State of Health is the rather to be wondered at, because they seem to be at little Pains to preserve it ; since they not only use severe Exercises, Dancing, and Hunting, but also expose themselves to all the Hardships of War and Fatigue. The Pleurisy sometimes rages among them, but they are acquainted with the most proper Method of curing it. The Small-pox are very frequent in *Canada*, and the more Northerly Parts ; but the

Of Endemial Distempers. 33

Venercal Disease is the Disease which principally rages in the Southerly Parts. The former of these Disorders is highly dangerous in the Winter-time, because Perspiration is then obstructed by the Cold, and the latter is highly familiar and *endemial* among the *Ilinese*, and those who inhabit the Banks of the *Mississippi*. In *Canada* large Numbers of People are, also, destroyed by the immoderate Use of Brandy, by which the native Heat is impaired, and a Consumption brought on. They are no great Admirers of Medicines, and absolutely laugh at Vomiting and Venesection. Every Week, however, they generally Sweat, during which, in the Summer-time, they go into the Rivers, and in the Winter-time immerse themselves in Snow.

In the Islands of *Cuba*, *Jamaica*, and *Hispaniola*, the Bites of Serpents and Scorpions are highly injurious to the Inhabitants, on which occasion they take the following Methods: They apply a Ligature to the Part affected, and sometimes scarify it; afterwards covering it with Theriaca, which they also take internally. They also use internally a Scruple of the Powder prepared of the Hearts and Livers of Serpents, by which means they not only preserve themselves from the Bites of these Animals, but also easily cure themselves when subjected to that Misfortune. The *Lues Venerea* is *endemial* in *Peru*, where it first began to rage after the Discovery of that Part of the World, and being brought into *Europe* in 1494 was first seen in the Siege of *Naples*. The Cause of this Misfortune is ascribed to their Use of human Flesh, Lizards, and Fishes eaten raw. See *Tebri Histoïr. des Antilles*, Tom. 2. tract. 5. cap. 2.

34 *Of* Endemial Distempers.

These are the Observations which have occurred to me with respect to the Diseases *Endemial* and peculiar to certain Countries and Nations; and, I hope, the Reader will from them be convinced, that by means of Aliments, acting mechanically, we either become sick, recover, or die.



OF THE
DISEASES
OF
TRADESMEN.

CHAP. I.

Of the Diseases of METAL-DIGGERS.

THE various and numerous Diseases, produced in Artificers by the Exercise of their respective Trades, are, in my Opinion, derived principally from two Causes: First, the noxious Quality of the Matter on which they work, and which, by breathing out noxious Steams, and subtile Particles offensive to human Nature, gives rise to particular Diseases; and in the next Place certain violent and disorderly Motions, and improper Postures of the Body, by which the natural Structure of the vital Machine is so undermined as gradually to make way for violent Distempers.

Having

Having fixt upon this Division, my first Task shall be to consider such Diseases as arise from the offensive Quality of the Matter which Tradesmen handle in the Way of their Business. Under this Head I reckon the Diseases which affect Mine-diggers, and all Workmen who work upon Minerals; such as Goldsmiths, Alchymists, Distillers of *Aqua-fortis*, Potters, Looking-glass-makers, Founders, Pewterers, Painters, and others.

The pestilential Steams hid within the metallic Veins, make the first Impression upon the Mine-diggers, who spend their Days in the subterraneous Caverns of the Earth; so that *Ovid* had Reason to say,

—— *Itum est in viscera terræ,
Quasq; recondiderat, Stygiisq; admoverat umbris,
Effodiuntur Opes, irritamenta malorum.*

It is true, the Poet's View run upon the evil Qualities which affect the Mind, and he meant to lash the Avarice or Madness of Men, who take such Pains in bringing to light what may be called good; because, as *Pliny*, elegantly expresses it, *We have made it the Price of all good Things*; but in Effect is the Source of so many Evils: Though this, I say, is the Poet's direct Meaning, yet his Words may be properly applied to the Disorders which affect the Body. Now, the Diseases which Metal-diggers and other such Artificers are liable to, are for the most part a Difficulty of Breathing, Phthisic, Apoplexy, Palsy, Cachexy, Swellings of the Feet, Falling of the Teeth, Ulcers in the Gums, Pains and Tremblings in the Joints; so that upon the Whole their Lungs and Brain are affected; but especially the Lungs which suck in the mineral Spirits along with the Air, and so receive the

the first Injury; after which the same Spirits, admitted within the Course of the Circulation and mingled with the Blood, corrupt and taint the natural Temperament of the Brain and the nervous Juice, from whence spring the Tremblings, Stupidity, and other Disorders above-mentioned. Hence it is that those who dig Minerals in the Mines are but short-lived; and the Women who marry them have the Opportunity of matching with several Husbands; for *Agricola* asserts that, near the Mines of the *Carpathian* Mountain, Women have been known to marry seven Husbands. And *Lucretius* says of the same Persons,

*Nonne vides, audisve perire in tempore parvo
Quam soleant, & quam vitati copia desit.*

In those Places where there are Mines, to dig in them was anciently, and is still, reckoned a Sort of Punishment fit to be inflicted upon Criminals; and accordingly we learn from *Gallonius, de Martyrum Cruciatibus*, that in ancient Times the Christians were usually (*Damnati ad Metalla*) condemned to dig in the Mines. And there is still extant a noble Epistle of *Cyprian* to several Bishops and Deans, whom the Emperors had barbarously condemned to dig in the Mines; in which he exhorts them to approve themselves the true Votaries of Christ, in those very Mines from whence they digged Gold and Silver. *Pignorius* also, in his Book *de Servis*, has the Draught of a Mine-digger taken from an ancient Sculpture, which shews how miserable their Condition was; for their Heads, which were covered with long Caps, were half-shaved; and by this Sign, in antient Times, the Slaves were distinguished from the Fugitives, whose Heads were shaved all over. And even in our
Time

Time I reckon the Mine-diggers are not in a much better State; for, suppose they fed clean, and had good Things about them, yet such is the Influence of the dark and impure Place they draw their Breath in, that their Looks resemble those of the Inhabitants of the Shades below, even when they peep out into our purer Air. In fine, let the Mineral they dig be what it will, they are still liable to violent Diseases, which often elude all manner of Cure even when proper Things are prescribed: And indeed it seems to be a doubtful Case, whether we ought to reckon it a good and pious Office, to prescribe Physic to such Wretches, and thereby prolong a miserable Life.

But as great Profit arises to Princes and Merchants from Mines, and as the Use of Metals is highly necessary to almost all Arts, we are therefore bound in Duty to preserve the Lives of these Workmen by investigating their Diseases, and proposing Cautions and Remedies for the Removal of them.

This was the Practice of former Ages, and even in these our Times, those who have written of Metals have treated at some Length of the Diseases of the Diggers, and of the Regimen and Remedies to prevent or cure them; particularly, *Georgius, Agricola* *, *Bernardus, Cæsius, Mutinensis*, in his *Mineralogia* †, where he has many curious and important Remarks of the *Damnati ad Metalla*, and of the preservative Course and Diet of Metal-diggers. *Athanasius Kircherus*, in his *Mundus subterraneus* ‡, *P. Lana*, in his *Magisterium Artis & Naturæ* §; and *D. Ramlovius*, who has wrote a
Treatise

* Lib. 6. *De Re Metallica*, lib. 10.

† Sect. 5.

‡ Pom. 2. lib. 10. sect. 2. cap. 2.

§ Tom 3. *de Morb. Symp.*

Treatise in *High-dutch* of the Palsy and Tremblings of Metal-diggers. Wherefore we ought to dispense, out of the Store-house of Medicine, some Relief or Comfort for the wretched Condition of that Sort of Workmen; and, considering that the several Kinds of Minerals are almost innumerable, and that each of them produces peculiar Evils, there will be a Necessity of tracing the Manner and Way in which the Bodies of Diggers are infected, and giving the readiest and most approved Remedies.

Some Mines therefore are moist, with Water standing at the Bottom; others are dry; and in both these we are sometimes obliged to use Fire to split the Rock or Stones. Now, in the moist Mines, where the Water stagnates, the Legs of the Workmen are apt to be vitiated, and by the Stench of the gross and poisonous Steams which exhale from thence, especially when the Pieces, or Splinters of the Stones, or Rocks fall into the Water, and stir up the poisonous Source, the Workmen's Breath is taken away, insomuch that they fall down head-long, or half dead. And the Fire itself, which otherwise tames Poison, being used here to soften the Rocks, stirs up and raises the pestilential Steams out of the mineral Matter; and thus do all the Elements conspire to torture the poor Workmen.

But no Exhalation is so absolutely pernicious to them, as that which breaks forth from the Quick-silver Mines; for *Fallopious*, in his Treatise *de Metallis & Fossilibus*, assures us, that in the Quick-silver Mines scarce any of the Workmen reach the third Year: And *Etmuller*, in his *Mineralogia*; *cap. de Mercurio*, affirms, that in the Space of four Months they are seized with Tremblings in the Joints, Palsies, and Vertigo's; and that, by reason

son of the mercurial Spirits proving highly injurious to the Nerves.

In the *Transactions* of the *Royal Society of England* * we have a Letter, sent from *Venice* to that Society, importing, that in some Quick-silver Mines in the *Forum Julii*, none of the Workmen are able to hold out above six Hours at a time. In the same Letter we have an Account of one who, having worked in these Mints for half a Year, was so impregnated with Mercury, that if he put a Piece of Brass into his Mouth, or handled it with his Fingers, it became thereupon white.

L. Tozzius, in the second Part of his Practice *C. de Asthmate*, takes notice, that these Workmen are apt to be seized with Asthmas: They used likewise to be troubled with the falling out of their Teeth; and for that Reason the Refiners of Quick-silver are wont to avoid the receiving of the Smoke in their Mouth by turning their Backs to the Wind.

Helmontius, in his Treatise *de Asthmate & Tussi*, describes a certain Kind of Asthma, between the dry and the moist Species, which, he says, is common among the Diggers and Refiners of Metal, the Minters of Money, and such other Workmen, by reason of a metallic Gas sucked in along with the Air, and which stuffs up the Vessels of the Lungs.

Wedelius, in his *Pathologia Medica Dogmatica*, † makes mention of an *Asthma Montanum*, to which those who work upon Metals are liable; and acquaints us, That *Stockusius* writ a whole Treatise of that Sort of Asthma, in which he imputes all the Mischief to the Quick-silver of Lead; for
Lead

* Tom. 1. April 1665. † Sect. 9. 2. cap.

Lead contains a great deal of Mercury, to which it owes its Gravity. The same Author * explains the Manner in which these metallic Fumes give Rise to this dismal Sort of Asthma; by the Exsiccation of the *Bronchia*, and the constipating Virtue of the Smoke and Soot.

Sennertus, in his Book of the *Consent and Dissent* † of the *Chymists* with the *Galenists*, tells us, upon the Authority of a Physician, who practised near the Mines of *Mysnia* in *Germany*, That, in the dissected Corps of the Workmen, they found the very Metal they had been employed to dig. And *Statius* ‡, inviting *Maximus Junius*, who then lived by the Mountains of *Dalmatia*, has a handsome Turn to this Purpose, in describing the Return of this subterraneous Crew from their Mines, viz. *Dite viso, erutoque concolor auro*; importing, That, after visiting the Mines, they returned died with the Colour of the Gold they have been a digging.

Since the Colour of the Skin resembles that of the Humours, *nisi intro refluxerint, unless they retire to the internal Parts*, as *Galen* teaches us, in *Aph. 1. Com. 2.* and as we find it verified in almost all Diseases, it is no wonder that the Skin of these Workmen bears the same Colour with that of the Metal, with which the Mass of their Blood is tainted. Perhaps the same Thing happens in the Lungs of the Workmen, that we see come to pass in the Furnaces for the refining of Metal, in which *Pompholyx*, *Cadmia*, and other metallic Concretions are generated out of the Fumes which fly up.

In

* Sect. 3. cap. 5. † Sect. 3. cap. 5. ‡ Cap. 9.
 ¶ Lib. 4. *Sylv.*

In the Vitriol Mines the Workmen are, also, frequently seized with violent Difficulty of Breathing. *Galen, de Simplic. Medic. Facult.* describes a Cave in *Cyprus*, out of which the Workmen fetched Water for the making of this Substance; and acquaints us further, that he went down almost a Furlong into the Cave, and there saw Drops of green Water falling into the Lake. He adds, that he smelt a suffocating and hardly tolerable Smell; that he saw the Workmen entirely naked fetching out the Water with great Dispatch, and running speedily back again. Now nothing is more pernicious to the Lungs than an acid of any sort, with which Vitriol is plentifully stocked. Many of our indolent Physicians now-a-days would laugh to see any other Professor and Searcher after natural Things, making dangerous Journeys to subterraneous Places, in quest of the secret Recesses of Nature. I remember with what Derision I was pointed at myself, when I run the Risque of my Life in tracing the Source of the Springs of *Modena*, and when I ventured to go down into our Pits which yields the *Petrolæum* in the Mountains: But these People may learn of *Galen*, who undertook long Travels, and with a curious Eye sought after the hidden Secrets of Nature, with Intent to set the Virtues of Medicines in a clearer Light. But, to avoid Digressions,

Not only the internal Parts of the Body, but likewise the external are greatly injured, particularly the Hands, Legs, Eyes and Throat. *Agricola* informs us, that the Hands and Legs are galled and corroded to the very Bone in the Mines of *Mysnia*, where the black *Pompholyx* is found. He adds, that the Nails of the little Huts and Cottages in the Neighbourhood of these Mines are made of Wood,

Wood, upon the Observation that this *Pompholyx* has consumed Iron.

Mines are also greatly infested with living Plagues, which torture the poor Workmen to the last Extremity, I mean certain little Animals resembling Spiders, which *Agricola*, out of *Solinus*, calls *Lucifuga*: These Animals haunt chiefly the Silver-mines; and when the Diggers, through Inadvertency, sit down upon them, they are miserably stung and indisposed. *Agricola* informs us likewise, that *Dæmons* and Ghosts terrify and disturb the Workmen, and that this sort of Apparitions cannot be prevented without Prayer and Fasting. See *Kircherus*, in his *Mundus Subterraneus* *. I took this Story of Devils haunting Mines to be fabulous, till I was undeceived by a skilful *Hanoverian* Operator in Metal, who is now employed by our Duke in tracing the metallic Veins in the mountainous Parts of *Modena*. For this Man told me seriously, that in the *Hanoverian* Mines, which are famous enough in *Germany*, the Diggers have frequent Falls, which they say are occasioned by their being knocked down by Devils, which they call *Knauff-kriegen*; and that after such Falls they often die in the Space of three or four Days, but if they out-live that Time they recover. These *subterranean* Devils are likewise mentioned in the *Transactions* † of the *Royal Society* of *England* ‡. The same *Hanoverian* informed me further, that in the *Goslar* Mines, where the *Vitriol-oar* is
 digged

* Lib. 6. de Re Metallic. & de Subt.

† Tom. 2. Nov. 1666.

‡ This idle Story of Devils is not to be credited however well attested. Nothing is more common than for Men of the best Sense and greatest Learning, to relate the greatest Absurdities, out of a Passion for the Marvellous.

digged up in the Form of a Powder, the Workmen do all their Business naked: For if they kept their Cloaths on under Ground but for one Day, as soon as they came up every Thing about them would turn to Powder: And for the same Reason those who in *Galen's* Time carried out the *Calcanthum* Water, in the Mines of *Cyprus*, were all naked.

Though the Nature and Temper of Metals and Minerals are sufficiently laid open by the Industry of the Chymists; yet there are so many inexplicable Mixtures and Combinations of Minerals in the Bowels of the Earth, that it is almost impossible to determine what specific Hurt or Injury is peculiar to this or that Mine, and how they affect one Part more than another. So that we can only say in general, that this imprisoned Air, taken in at the Mouth for the Use of Respiration, is impregnated with Particles very injurious to the Lungs, Brain, and Spirits, which, joining with the Mass of Blood and Spirits, produce all the Evils the Workmen complain of.

It is therefore the Duty of the Overseers of Mines, and of such Physicians as have that Province allotted them, to make all the Contrivances they can for the Safety of the Workmen, and, since they cannot remove the occasional Cause, to take such Measures, that the Workmen may be as easy as possible. When these Men are sick, we must do by them as we do with those who are ill of desperate Diseases, to whom we do not deny the Prescription of Medicines, at least such as have a mitigating, pacific Virtue: For, as *Hippocrates* says, * we must pursue the Knowledge of incurable Diseases, with an Intention to make them as easy as we can.

The

The imprisoned Air of the Mines being tainted and polluted, partly by the Steams of the mineral Matter and of the Workmen's Bodies, and partly by the Fumes of the Lights that are kept under Ground, the Overseers of Mines use to draw out the gross and stagnating Air, and let in such as is more pure and fresh, by some Wind-machines communicating with the Bottom of the Mines through Passages under Ground. They also generally guard the Hands and Legs of the Workmen with Gloves and Boots, to prevent their being infected. It is manifest, that the Ancients likewise took great Care of the Safety and Health of their Mine-diggers; for *Julius Pollux* asserts †, that they used to cover them with Bags or Sacks. They used to have loose Bladders upon their Mouths, to keep out the pernicious Air; and these Bladders were so contrived, that they could see through them, as *Pliny* ‖ tells us of the Polishers of *Minium*. But at present, especially in the Arsenic-mines, we use Glass-vizards, which is a safer and a neater Contrivance, as *Kircherus* informs us, in the Place last quoted.

The same Author prescribes various Remedies, both as preventive and curative; which, he says, he had from an expert Man in Metals. He bestows great Encomiums on a Liquor distilled from Oil of Tartar, *Laudanum*, and the Oil of Colcothar, given to three Grains. By Way of Prevention or Preservation, he commends fat Broth and generous Wine. For those who are already infected, he recommends a Balsam made of Nettles, and the seasoning of their Food with the Salt of Nitre, and a Salt extracted out of Alum.

Jun-

† Lib. 7. cap. 32.

‖ Lib. 33. H. N. cap 5.

Junken, in his *Experimental Chymistry*, recommends the dulcified Spirit of Salt, for subduing metallic Vapours.

For the Corrosion and Soreness of the Throat and Gums, Gargarisms of Milk are extremely serviceable, as being apt to qualify and absorb the corrosive Particles lodged in those Parts. With this View *Agricola*, in the Place last quoted, says, Butter is very conducive to those who work in Lead-mines: For those whose Feet and Hands are chopped and galled, as it happens in the Mines where the black *Pompholyx* is digged, *Pliny* * recommends the Powder of the Stone called *Asius*, or *Eat-flesh*. This Prescription he grounds upon an Observation, that those, whose Legs were spoiled in Metal-mines, were cured by working in the Quarries where that Stone is found. It is possible this Stone might correct the metallic Acrimony by its particular corrosive Virtue, with relation to which it is called *Sarcophagus*, *Cæsalpinus*, *de Metallicis* †, alledges, that the true Stone, called *Asius*, from being found in *Affos* of *Troy*, is unknown to us, and puts in the room of it another Stone that is found in *Ilva*, where the Rock-alum is digged.

Etmuller ‖, when he treats of an injured Inspiration, proposes some peculiar Remedies for the asthmatic Disorders which arise from metallic Fumes; alledging, that the ordinary antiasthmatic Remedies afford no Relief in such Cases. For this End he recommends *Mercurius Dulcis*, *Turbith*, *Cathartics*, *diaphoretic Antimony*, the *Solar Bezoardic*, and the like.

Since the Eyes are likewise signally injured by these mineral Streams, the mineral Kingdom must like-

* Lib. 36. H. N. cap. 17. † Cap. 51.

‖ Lib. 14.

likewise be consulted for a Remedy to that Misfortune. By the Use of internal Minerals *Horstius* cured an *Ophthalmia* arising from metallic Fumes, and eluding all external Remedies. But at the same Time *Collyriums* *, made of the Scales or Offal of Brass, are much commended; and even the Ancients were apprised of their Virtue; for it is asserted by *Macrobius* †, that those who work in Brass-mines have always strong and sound Eyes, by reason of the drying Virtue, as he calls it, that is inherent in the Brass. With the same View does *Homer* ‡ give to Brass the Title of Νόρωπα χαλκόν; and *Celsus* allows a Preference before all others to *Cleon's Collyrium* of the Scales of Brass, with Saffron, and Spodium, or Putty. To these *Collyriums* you may add Nitre; for *Pliny* || affirms, that, in Salt-petre Mines, the Workmen are not weak-eyed, and the Observation of later Authors confirms his Testimony. Upon the whole, we may lay down this for a standing Truth, that the most proper and effectual Remedies, for defeating metallic Diseases, are generally to be obtained from the mineral Kingdom; and indeed the Conduct of Nature in this Point is very provident, in furnishing a Cure from the same Quarter which produces the Disease.

But the metallic Steams affect not only the Workmen who dig in the Mines, but likewise many other Artificers who work about the Mines; particularly all those who are employed in working, melting, and refining the Metal; who are all subject to the same Diseases with the Diggers; only they are not so deeply affected, because their Work is done in the open Air. In Process of Time, the metallic Fumes render them short-breathed, lethargic,

* Lib. 17. *Obs* 27.

† Lib. 7. cap. ult.

‡ Lib. 6. cap. 7.

|| Lib. 32. *H. N.* cap.

gic, and subject to the Disorders of the Spleen; and at last they grow consumptive. *Hippocrates* * gives us a short but accurate Description of the Case of one who works in Metal. *A Man of this Business*, says he, *has his right Hypochondrium tense, a large Spleen, and a costive Belly; he breathes with Difficulty, is of a pale, wan Complexion, and is apt to have Swellings in his left Knee.* Such is the Train of Evils which *Hippocrates* allots to this Sort of Men. And here we cannot but wonder how *Valesius*, who otherwise comments very accurately upon *Hippocrates* his *Epidemics*, comes to pass so transiently over this Place; for neither he nor any of the Commentators have made any Remark upon the Words, *Vir metallicus*. *Galen* † indeed takes notice of the Place, but then he employs all his Thoughts upon the Word *Pneumatodes*, by way of Disquisition, whether *Hippocrates* meant by it the Inflammation of the Abdomen, or a Difficulty of Breathing. After all it is apparent, that the divine Preceptor meant to point out the Cause of so many dismal Disorders in one Word: For those who work upon Metals are generally short-breathed, splenetic, costive, and wan-complexioned. *Fæsius* renders the Words ἐκ μέλλων, *Qui circa fossinas versabatur, who frequented Mines.* So that not only the Diggers, but those who live and work near the Mines, are disordered by the metallic Exhalations, which cloud the vital and animal Spirits, whose Nature is ethereal and pellucid, and thus pervert the natural Oeconomy of the whole Body. To these therefore we are to prescribe the same Remedies as we mentioned above, only their Dose must be gentler.

CHAP.

* *Epid. n. 13.*† 3. *De Diff. Resp. cap. 12.*

of TRADESMEN.

CHAP. II.

Of the Diseases of GILDERS, or those who work in Gilt.

IF we turn our View from the Mines, and the Beating, Melting, and Refining Work-houses, to Towns and Cities, here we also meet with Workmen who suffer by the Influence of Minerals. It is well known what dismal Calamities are inflicted by Quick-silver upon Goldsmiths, and chiefly those who are employ'd in gilding Silver or Brass-work: For, as this gilding cannot be performed without Amalgamation, so when they afterwards come to dislodge this Mercury by Fire, though they turn away their Faces, they cannot possibly avoid receiving some poisonous Steams at the Mouth, and accordingly we find that this Sort of Workmen quickly become asthmatic, paralytic and liable to Vertigo's; and their Aspect becomes cadaverous and ghostly. Few such Workmen continue in that Way to old Age; or, if they do not die soon, their Condition becomes so miserable, that Death is preferable to Life. Their Neck and Hands tremble, their Teeth fall out, their Legs are weak and afflicted with the Scurvy, according to *Junchen* in his *Experimental Chemistry**. *Fernellius* attests the same Thing in his *Treatise de Abditis Rerum Causis*†, and in his Book, *de Lue Venerea*, where he gives a miserable Instance of a Gold-finer, who, in gilding some Silver-plate, was so affected by the Mercurial Vapour, that he thereupon be-

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* Sect. 5. de Merc.

† Lib. 2. cap. 7.

came stupid, deaf, and dumb. *Foreſtus* gives much ſuch another Story of a Goldſmith, who turned paralytic upon expoſing himſelf imprudently to the Mercurial Steams. *Olaus Borrichius* has a pretty Obſervation (extant in the *Acta Medica Hafni-enſia* ‡) of a German who lived by Gilding Plate; and, upon managing the Steams of the Mercury with leſs Caution than uſually, fell into a diſmal Vertigo, with a violent Difficulty of Breathing, a ghafly Countenance, a Lowneſs of Pulse, and Trembling of the Joints, inſomuch that every one thought he was expiring; but was cured after all by Sweat procured with ſeveral alexipharmacal Preſcriptions, and eſpecially the Decoction of the Roots of Burnet and Saxifrage. That famous Author is of Opinion, that the minuteſt Corpufcles of the Mercurial Fumes, being forced in upon the Nerves, occaſioned the Trembling, and at the ſame Time being admitted into the Maſs of Blood clogged its natural Motion. It would be too tedious to insert all the Hiſtories of this kind we meet with in Phyſical Authors. Such Caſes are but too frequent in great Cities, and particularly in this our Age, in which nothing is thought handſome or neat, unleſs it ſhine with Gold; inſomuch that the very Chamber pots and Stool-pans are gilded; and the Ceremony of throwing out is more chargeable than that of taking in, as *Martial* ſaid of one in former Times.

I had Occaſion myſelf not long ago to ſee a young Man, a Gilder, who died after two Months Confinement to his Bed, having taken too little Care to avoid the Mercurial Exhalations. For they threw him at firſt into a cachectic Habit of Body; after that his Face became wan and of a cadaverous Complexion, his Eyes ſwelled, his Breathing

ng became difficult, and his Mind stupid, and an inactive lazy Drowsiness seized his whole Body. He had foetid, stinking Ulcers in his Mouth, which voided incessantly a very great Quantity of nasty Matter. And after all, this Man died without any feverish Symptom; at which indeed I was not a little amazed: For I could not be satisfied how so great a Putrefaction of the Humours should happen without any febrile Heat. But, upon consulting Authors, my Amazement was removed. For *Ballonius* || has an Instance of one, suspected to be under a Venereal Contagion, who was seized with a Quartan, and cured of the Fever by the Inunction of Mercury, which raised a Salivation. *Fernelius* in like manner (*de Lue Venerea**) mentions the Case of one whose Brains melted and run out of his Eyes for several Years without a Fever; and who died at last, but had formerly suffered a mercurial Inunction. And the same Author ingenuously acknowledges, that he could not but wonder how it came about, that this Man was never feverish: But in his second Book, *de Abditis Rerum Causis* †, he seems to offer some Reason why Mercury quells a febrile Heat; alledging, that it does it by a narcotic Virtue, and that it corrects the Ardour and corrosive Quality of the Bile, by the same Faculty that it enables it to appease all manner of Pain, and stop Eruptions of Blood. Shall we therefore conclude, that Mercury is possessed of an antifebrile Virtue? Perhaps Time may honour the Science of Physic with a *Febrifuge* from the mineral Kingdom, and that not covered with Riddles and Obscurity, as *Riverius* gives it, but openly and candidly displayed. Why may not this come

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to pass, as well as the Discovery made upon the vegetable Kingdom, which affords us the famous *Peruvian Febrifuge*, and an antidyenteric Remedy lately discovered, of which the famous *Leibnitz* has published a Treatise? But in this Affair we ought to consult Experience; and indeed I cannot see any Inconveniency in giving mercurial Purgatives in intermitting Fevers; particularly those of *Mercurius Dulcis*, which is no such formidable Remedy. It is true, Mercury ought to be cautiously prepared, and with equal Caution administered; for, when it falls into unskilful Hands, it is like an unmanageable Horse, as the learned *Borrichius* observes, in relating the Case of an illustrious Person, who in a high burning Fever had two little Bags full of Quick-silver applied to his Wrist by a Quack, which extinguished at once both the febrile and the native vital Heat. After all, the Benefits we receive, from such a faithless and *Proteius* like Medicine, are so much suspected, that we may justly apply to the medicinal Mercury, what the Prince of Poets said of the poetical.

——— *Animas ille evocat orco,
Pallentesque alias ad tristia Tartara mittit,
Dat somnos, adimitque, & lumina morte resignat.*

But, to return to the Subject in Hand, which is the Redressing of the Injuries proceeding from mercurial Vapours, conveyed along with the Air we breathe: For this End we ought to consult such Authors as have wrote of Poisons and Minerals. In general all such Things are commended as are qualified to put in Motion the Spirits and Mass of Blood, and procure Sweat. For Mercury for the most part causes a drowsy Inactivity, as appears from the above-mentioned Accidents, occasioned by the

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Reception of metallic Fumes at the Mouth, and from ocular Inspection; for in such Cases we find concreted Blood in the Sinus's of the Heart; as *Avicenna* tells of a Monkey which had drank Quick-silver. By this Rule, all cordial spirituous Waters, and even Brandy or Spirit of Wine, will be of use; as well as the Spirit of Sal Armoniac, Spirit of Turpentine, Oil of Petre, or our Rock-oil, the volatile Salts of Hartshorn, Vipers, and some others; but *Venice Treacle* is justly suspected, by reason of the Opium. The Decoctions of *alexipharmic* Plants; such as *Carduus Benedictus*, *Scordium*, *Scorzonera*, and the like are more effectual than their distilled Waters, which *Helmont* happily calls *Plantarum Sudores*. *Fallopious* prescribes Gold-dust and Gold-leaf, there being nothing which Mercury joins with so readily and closely as with Gold. *Martin Lyster* in his *Exercitatio de Lue Venerea*, advises to oppose the venomous Exhalations of Mercury with the Decoction of *Guaia-cum*, by reason of the *Vis piperata*, aromatic Force, which, he says, the *Guaia-cum* enjoys, and is distinguishable by the Taste.

Against mercurial Diseases, particularly of those who have been anointed with mercurial Ointments, or by any chance have sucked in the Smoak of Mercury, *Poterius*†, in his *Pharmacopœa Spagyrica*, recommends sublimated Sulphur infused in Wine. Where the Redundance of Humours renders Purgation necessary, we must give stronger Purgatives than in other Cases, by reason of the Dullness occasioned by the Mercury, and because the sensitive Faculty is less apt to be moved by the *Stimuli* of the Medicine. Antimonials will answer this and all the other Ends admirably well. Bleeding must be avoided by all means, for the Spirits and the

Mass of Humours want to be stimulated, and not quelled. *Pliny* tells us, that in digging Lead and Quick-silver the Antients used to tie loose unbent Bladders upon their Faces, as I intimated above. *Kircherus*, in his *Mundus Subterraneus*, says, Glass Vizors are of better Use to guard the Mouth from Exhalations. Exercise must be pursued in regard it heats the Body, and keeping in a warm Chamber by a good Fire is commended; for Mercury avoids the Action of Fire as much as possible.

But after all, it is strange that Mercury, which is the only Remedy for Worms, and is given to Children without any manner of Hurt, either by way of Infusion or Decoction, or in Bolus's, or with any Conserve, should emit such pernicious Exhalations, as suffocate Persons almost in a Minute, when they are received by the Mouth and Nostrils. The Reason I take to be this: The Texture and Fabric of the Quick-silver being dissolved by the Violence of the Fire, it is reduced to such minute Particles, as penetrate to the Lungs, Heart and Brain, upon their being received at the Mouth and Nostrils. By this Means it is enabled to cloud the animal Spirits with more Facility, and taint the whole Mass of Fluids with a narcotic Languor: Whereas its Infusion or Decoction given at the Mouth to several Ounces, and even to a Pound, as in the Iliac Passion, occasions none of the above-mentioned Accidents; for it does not meet with so much Heat in the Bodies of Animals, as is sufficient to dissolve and convert it into Fumes; nay, it is so far from that, that it keeps its Fabric unaltered, and by its Weight makes way for itself, breaking through all Barriers; insomuch that we find in *Ausonius* it acted the Part of an Antidote to a jealous Husband, whose adulterous Wife had given him Poison, and afterwards Quick-silver in hopes

hepes thereby to accelerate his Death. Thus it is, that Fire, otherwise the Corrector and Tamer of Poison, raises Things otherwise innocent into a venomous Nature, or exalts and sharpens the Poison. *Ambrosius Paræus* * acquaints us, that Pope *Clement VII.* died by receiving into his Body the Smoak of poisoned Torch that was carried before him, and adds, that it is a false and pernicious Thought, that Fire by its searching Virtue purges and cures all Things. Hence I think we have sufficient Reason to doubt, whether in Time of a Plague it would not be better to bury the Cloaths and other Appurtenances of those who die of the Contagion along with their Corps, than to commit them to the Flames in pursuance of the usual Custom. Among the *Romans* the burning of the Corps within the City or near another Man's House, was prohibited by the Law of the Twelve Tables; and the principal Reason of the Prohibition was, the Fear of having the Air defiled by the Smoak and Exhalation. The Fire produces various and different Effects, according to the Diversity and Mixture of the Bodies upon which it acts; so that sometimes it sets free and disengages, and at other Times it concentrates and condenses Poison. Of this we have a manifest Instance in Quick-silver, which, though drunk without any great Inconveniency, yet, when sublimed with the Salts, assumes, a corrosive Nature, which afterwards grows milder, by the Addition of Mercury under the Influence of the Fire, and so becomes a *Mercurius Dulcis*, which when right prepared, is none of the meanest Remedies, for purging Phlegm and extirpating the venereal Contagion.

C H A P. III.

*Of the Diseases of SURGEONS, and others
employed in Frictions and Inunctions
for Venereal Cases.*

BESIDES the Persons abovementioned, Mercury is likewise injurious to the *Surgeons* of the Age we now live in ; I mean those of them who anoint pocky Persons, or such as cannot be cured without Salivation. As soon as the Virulence of the Pox flew from the Siege of *Naples* all over *Italy*, and run from thence like Lightning to all the Parts of *Europe*, the chief and principal Remedy they found out, for controuling the fierce Contagion, was Mercury ; and to this very Day the same Remedy is still in Repute, being further recommended by the continued Experience of two Centuries. The antient Physicians had observed, that nothing was more effectual than Mercury agrinst the most malignant Scab, or Itch ; so that, by way of Analogy, it was concluded, that, since pocky Persons had Blotches and Ulcers in their Skin, Mercury must likewise be of use to them, and Experience justified the Inference. The first Author of the mercurial Inunction was *James Berengarius*, commonly called *Carpus* from his Country, the most noted Surgeon and Anatomist of those Times, as is obvious by his Works ; from which, as being very rare and hard to come at, the modern Anatomists have culled a great many important Things without mentioning his Name. *Fallopins*, in his Treatise of the Pox, tells us, that *Jacobius Carpensius* got above 50,000 Ducats of Gold only by curing the Pox with Inunction ; and that he killed many

many, though he cured the greatest Part. It is certain this Anointer knew better than the Alchemists how to make a true *Metamorphosis* of Mercury into Gold; a Happiness sure that is very uncommon, and far different from what appears in the Times we live in, which struck even *Sennertus* himself with Admiration.

Now-a-days those, who rub the mercurial Ointments on pocky Persons, are the meaner Sort of Surgeons, who undertake that Office to make a little Money by it; for the better Sort of Surgeons decline such a sordid Piece of Service, which is likewise accompanied with Danger. It is true, in such Cases they make use of a Glove, but all that Precaution is not sufficient to keep the mercurial Atoms from penetrating the Leather, and so reaching the Surgeon's Hand; for, upon other Occasions, we use to cleanse and strain Quick-silver through Leather; neither can all their Caution guard against the Exhalations, which the great Fire, by which the Inunction is performed, must necessarily excite: And it is well known, that these Exhalations, entering the Body by the Mouth and Nostrils, prove very injurious to the Brain and Nerves. *Fabricius Hildanius* † relates the Case of a Woman, who sitting in the Room by her Husband, while he was anointed with a mercurial Ointment, had such a Salivation raised merely by the mercurial Air taken in at the Mouth, that Ulcers were formed in her Mouth and Throat. *Pernelius, de Lue Venerea* ‡ writes, that the Hands of such pocky Persons as have been often anointed with Quick-silver, tremble and shake. *Frambesarius* acquaints us, that a Surgeon, upon anointing a pocky Person with the usual Ointment, was seized with a continual Vertigo and Dimness of Sight.

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For my Part I can think of no cautionary Method so proper and so effectual, for those imployed in such Inunctions, as that of a Surgeon, of our Country, who finding to his Cost that the Danger and Trouble he underwent surpassed the Profit, and having experienced by frequent Loosenesses, Gripes and Salivations, upon his own Person, that such Inunctions were more afflicting to him than to the Persons anointed, did thereupon alter his Course, and continuing to prepare the mercurial Ointment as before, and to stand by the Patients while the Friction was performed, ordered the Patients to rub themselves with their own Hands; by which means a double Advantage is gained; for not only the Surgeon avoids Danger but the Patients thus heating themselves, by the Motion and Exercise of their Arms, make the Ointment penetrate the better; and withal have no Reason to apprehend any Danger to themselves from the Remedy, in which they place all their Hopes of Relief. But if such Surgeons have contracted any Harm by the Inunction, such as the Shaking of the Hands, a Giddiness in the Head, and Gripings of the Guts, in such Cases, as I said before, the Decoction of *Guaiaicum* is the Remedy. For as Mercury is the great Conqueror and Corrector of the venereal Poison; so *Guaiaicum*, by its melting and sudorific Virtue, corrects the Disorders occasioned by the Mercury, in afflicting the Body with a narcotic Dullness, and an Imbecillity of the Nerves. Accordingly we find that those two cardinal Remedies do, with joint Forces, thoroughly accomplish the Cure of the Pox; and that in such a Manner, that *Guaiaicum* does first attack and weaken the Disease with small Skirmishes, after which Mercury stands the Brunt of a longer Engagement, and at last *Guaiaicum* comes in and dis-

disperſes the ſtraggling Remains of the routed Enemy.

CHAP. IV.

Of the Diſeaſes of CHEMISTS.

THOUGH the *Chemists* boaſt of the Art of Subduing and Fixing all Minerals, yet they themſelves cannot eſcape free from their pernicious Influence; for they are oftentimes afflicted with the ſame Diſorders with the other Workmen imployed about Minerals; and though, to keep up the Credit of their Art, they may deny it in Words; their very Faces evince the Punishment they undergo. *Leonardus à Capua* informs us, that *Theophrastus* and *Helmont*, two celebrated Chemiſts, were ſeverely puniſhed by the Preparation of their own Medicines. *Juncken*, in his *Experimental Chemistry* ||, tells us, that in making the Glaſs of Antimony, the Smoak of the pulverized Antimony, renders the Operator ſhort-breathed, and affects him with a Swimming in the Head. *Etmullerus de Tuffi*, candidly acknowledges that when he was in perfect Health, and had Occaſion to prepare the Clyſtus of Antimony, by chance the Retort broke, and, the Smoak of the Sulphur and the Antimony reaching his Mouth and Noſtrils, he was ſeized with a Cough, which afflicted him for four Weeks after, of which he knew no other Cauſe, but that acid Smoak which ſtimulated the Organs of Reſpiration, and made them rough. What *Tachenius* openly confeſſes of himſelf, in his *Hippocrates Chemicus**, is pretty enough;

enough; he tells us, that, having a mind to sublime Arsenic, till it should remain fixed at the Bottom of the Vessel, by opening the Vessel after several Sublimations he perceived a wonderfully sweet Smell, but in half an Hour after was seized with a Pain in his Stomach, with a Difficulty of Breathing, a Pissing of Blood, a Cholic, and Convulsions all over his Body. He adds, that, by the use of Oil and Milk, he recovered himself pretty well, but was afflicted for a whole Winter with a slow Fever, not unlike a Hectic, which at last he got removed by using the Decoction of the vulnerary Herbs, and eating Colewort Tops. I was acquainted myself with our *Carolus Lancelotus*, a Chemist of some Note, but a trembling, blear-eyed, toothless, short-breathed, rotten Fellow, whose very Looks derogated from the Fame and Repute of the cosmetic Medicines which he used to sell.

But, after all, far be it from me to brand the Study of Chemistry for an unlawful Exercise; doubtless, all Praise and Commendation is due to those Chemists, who are so intent upon the Discovery of abstruse Things, and enriching the Science of natural Things, that they scruple not to sacrifice their Lives to the public Good: Neither are they to be blamed, if, in correcting the Virulence of Minerals, they cannot use sufficient Caution; for there is a Necessity of their standing by, and observing the whole Process even under the Heat of the Fire and the Smoak of the Coals, if they would have the Medicines duly prepared and exhibited with Safety: For *Renatus Cartesius* says, in chemical Operations, the least Variation and Neglect may so alter the Qualities of the Medicines, as to turn them into Poison, instead of Remedies. To the

the same Purpose says *Junchen* * in his Preface, chemical Medicines cannot be exhibited by a Physician with a safe Conscience, unless he either prepares them with his own Hand, or sees them prepared by an expert Chemist. So that, as a Groom is not to be blamed if, in breaking a fierce and vitious Horse, he is sometimes thrown; so a Chemist must not be laughed at though he comes out of his Laboratory with a squallid and frightful Aspect, like one just arrived from the Regions below.

A few Years ago a mighty Quarrel arose between a Citizen of *Final di Modena*, and a *Modenese* Merchant that had a great Laboratory in that Town. The *Final* Man sued the Merchant, alleging, that he ought to place his Laboratory out of Town, or somewhere else, because it annoyed the whole Neighbourhood, while they calcined the Vitriol for the making of *Sublimate*. To make good his Charge, he produced the Attestation of a Physician of that Town, and the Parish Books; by which it appeared, that a greater Number of Inhabitants in Proportion had died in that and the other Places adjacent to it, than in those which were more remote. The Physician attested further, that those who lived in the Neighbourhood of that Place died usually of a Consumption, and of the Diseases of the Breast, which he imputed principally to the Exhalations of the Vitriol which polluted the ambient Air, so as to render it unfriendly to the Lungs. *Bernardus Corradus*, Commissary of the Ordinance in the Territory of *Este*, employed his Pen in behalf of the Merchant; and *Casina Stabe*, a Physician at *Final*, appeared in Vindication of the other.

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In fine, several Papers were writ *pro* and *con* prettily enough, and these warm Disputes were raised upon the Shadow of the Smoak. At last the Judges favoured the Merchant, and Vitriol was absolved as innocent. Whether the Lawyer did Justice or not, I leave the natural Philosophers to judge.

To return to the Subject-matter of this Chapter, I should be sensible of offering an Affront to the Chemists, if I proposed any Remedy, whether preservative or corrective for the Injuries sustained in the Way of their Profession; upon the Consideration, that there is scarce any Disease, for which the Chemical Storehouse has not a ready and effectual Remedy. So, leaving them to their own Laboratories, we shall now proceed to other Work-houses.

C H A P. V.

Of the Diseases of POTTERS.

THERE is scarcely any City in which there are not other Workmen, besides those mentioned above, who receive great Prejudice from the metallic Steams. Among such we reckon the *Potters*; for what City, what Town is without such as practise this most antient Art? Now the Potters make use of burnt and calcined Lead for glazing their Ware; and for that End grind their Lead in Marble-vessels, by turning about a long Piece of Wood hung from the Roof, with a square Stone fastened to it at the other End; while they do this, as well as when, with a Pair of Tongs they daub their Vessels over with melted Lead, before they put them into the Furnace, they receive,
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by the Mouth and Nostrils, and all the Pores of the Body, all the virulent Parts of the Lead thus melted in Water and dissolved, and are by that Means seized with heavy Disorders. For first of all their Hands begin to shake and tremble, soon after they become paralytic, lethargic, splenetic, cachectic, and toothless; and, in fine, we scarcely see a Potter that has not a Leaden cadaverous Complexion. In the *Acta Hassniensia* †, an Account is given of a Potter in whose dissected Corpse the right Lobe of the Lungs was found adhering to the Ribs, and tending to a withered Driness and a Phthisic; this Indisposition of his Lungs was attributed to the Trade he had worked at; for the Patient had been bred to the Potters Trade, and finding it unhealthful had left it off, though not soon enough. *P. Poterius* ‡, tells us of a Potter, who became paralytic in the Right-side, with such a Distortion of the *Vertebræ*, that his Neck became stiff. This Man, he says ||, he cured with the Decoction of Sassafras-wood and Bay-berries. The same Author * relates likewise the History of another Potter who died suddenly.

Such are the Diseases which affect those imployed in Potters Work-houses, to manage and work the Lead; and indeed, it is a wonderful Thing, that Lead, which affords so large a Stock of wholesome Remedies, both for internal and external Uses, should harbour in its Bosom such pernicious Principles; and while it is pounded, or dissolved in Water, should by its sole Exhalations give Rise to such dismal Disorders in the Potters, who are obliged to make use of it. But I ceased to wonder, when I learned from the excellent Mr. Boyle, that in a Moment of Time almost Quick-silver

silver is fixed and rendered solid by the Vapour or Steam of melted Lead ; so that, as *Trusthonas* has justly observed, in his *Exercitation of the Use of Respiration*, the same Thing that the Poets fancied *Vulcan* to do with *Mars*, is done by Lead to *Mercury* by fixing it. It is no Wonder therefore that Lead, though of a cold Nature, when thus ground surprisngly affects the Grinders, by clogging their Blood and Spirits, and rendering their Limbs unserviceable.

That Lead is possessed of an acid, austere, very sharp, and penetrating Spirit, is attested by all Chemists, and the Refiners of Gold and Silver can witness the same at their own Cost, there being Lead mixed with those Metals. The Authors of the *Collectanea Chemica Leydensia* say *, the Spirit of Lead is endowed with such an *Acrimony*, that, when it goes through the Copel, if one receives the exhaling Steams at the Mouth or Nostrils, he may be immediately suffocated ; and those who are not sufficiently cautious in avoiding it, are generally punished with the Loss of all their Teeth.

Being obliged, in Prosecution of my Design laid down in this Book, to visit all the Work-houses of Artificers, in order to obtain a clear View of the occasional Causes of their Diseases, I had once a strong Mind to insert here some Remarks I made in the Potters Work-houses, concerning the mechanic Art of glazing Earthen Ware, which is very antient, as appears from the Rubbish of Antiquity digged out of the Earth, and highly necessary : For, if we had not the Way of glazing earthen Vessels, what a great Charge would the World be put to in Pewter and Copper Vessels both for the Kitchen and the Table. I could not forbear joining Admiration to my Curiosity, when

the Enquiry, how it came to pass that the earthen Ware, first boiled in the Furnace, then covered with Lead calcined, pounded with the Powder of Flints, and melted, and thus put into the Furnace again, did assume by the Influence of the Fire, that glassy Crust that renders them so serviceable in all the Uses of Life, and particularly to the Chemists, who inculcate nothing more, than that glazed Vessels should be made use of in *Spagyric* Operations? But I cannot do Justice to this Subject, without digressing too much from my Purpose. Besides, I am afraid, lest, in Treating of the Potters Business, I should have *Horace's* Censure thrown upon me.

*Amphora cæpit
Institui; currente rota cur urceus exit.*

Upon these Considerations I chose to drop the Design which I may possibly pursue upon a more proper Occasion, in a Piece which I intend to publish, entitled, *De Artium Mechanica Rationali*.

As for the Cure of such Workmen as fall under the above-mentioned Disorders, it is a hard Matter to light upon such Remedies as will restore them to perfect Health: For they seldom have recourse to the Physicians, till the Use of their Limbs is taken from them, and their *Viscera* grown hard; besides, they are commonly pinced with another Evil, *viz.* extream Poverty; so that we were forced to fly to the *Medicina Pauperum*, and prescribe such Things as at least will mitigate the Illness, advising them withal to give over working at their Trade. I have given with Success for several Days mercurial Purgatives, particularly *Mercurius Dulcis* with the lenitive Electuary, at the same Time I

Ordered the Hands and Feet to be anointed with our Rock-oil. The chalybeat Remedies, which are not very chargeable, if exhibited for a long Time, will do considerable Service in correcting the Hardness of the Viscera. I prefer the simple Filings of Steel infused in Wine with Cinnamon, to all the chemical Chalybeats, as being at once more effectual and less chargeable to poor People.

In the mean Time we must take Notice, that there are several different Sorts of Workmen in a Potter's Work-house; some of whom are employed in working of Chalk with their Hands and Feet; and others in forming the Vessels by sitting and turning a Wheel; so that all, who go by the Name of Potters, are not subject to the Diseases before-mentioned, and therefore Care must be taken, that, whenever the Name of a Potter is heard, we do not presently administer the Remedies, calculated to correct the Injuries of the mineral Matter. However, this may be said of them in general, that as they all spend their Lives in moist Places, and are still employed in Handling moist Earth, so they are for the most Part wan-complexioned and cachectic, and almost always complaining of some Illness or other. Those who sit at the Wheel, and form the Vessels by turning it about with their Feet, are apt to have a Swimming in the Head, if their Eyes are otherwise weak; and often the over-tiring of their Feet makes them subject to the Sciatica; and therefore we ought to assist them with the Remedies prescribed by Practitioners in such Cases; which, if they do not extirpate, will at least alleviate and mitigate the Disease.

C H A P. VI.

Of the Diseases of those who work in
COPPER and TIN.

THE Workmen, whose Business it is to melt and hammer *Copper* or *Tin*, are exposed to the same Misfortunes with the former ; for the subtile Atoms which exhale from the *Copper*, while it is frequently heated for the easier Extension, enter the Lungs, raise a dry Cough, and by their Acrimony corrode the vesicular Texture of the Wind-pipe and the Lungs ; they likewise produce Vertigo's and a discoloured Complexion. The Nature of these Particles, lodged in the *Copper*, is set in a clear Light by the Beard and Hair of the Workmen, which in these Work-houses become green. As for those who work in *Tin*, they are usually attacked by the same Symptoms with the Melters and Grinders of *Lead*, of which sort are the Potters : For *Tin* bears a great Resemblance to *Lead*, upon which Account some call it *white Lead*, and others say, it is a *Medium between Silver and Lead*. It is certain, that it consists of *Mercury* and a sharp *Sulphur* ; so that, when the Workmen melt it, they cannot but receive at the Mouth pernicious Exhalations from it.

Etmuller, in his *Collegium Consultatorium* *, has a curious History of a *Tinman*, who was seized at first with a Cough, and then with so great an Anxiety and Difficulty of Breathing, especially at Night,

Night, that he used to jump out of Bed, and open the Windows to take in the fresh Air, and to walk up and down the House all Night till Break-of-day, at which Time all the Symptoms disappeared. The Cause of all these Symptoms is imputed, by the experienced Author, to the mercurial Steams of the Metals ; for he tells us, that Tin contains a large Quantity of volatile Antimony, which, mixed with Nitre, assumes a fulminating Force. This sort of Asthma he ranks among the convulsive Kind, as depending upon the spasmodic Contraction of the *Plexus Nerveus*, which hinders the Expansion of the Lungs.

We frequently meet with such Instances in Cities ; and, whenever they have recourse to the Aid of Physic, they ought to be treated with the same Caution with the other Workers in Metal. In the mean Time the Breast, being the principal Seat of the Disease, ought to be chiefly regarded, and first looked after ; for their Complaint is of a Difficulty of Breathing. They must be cured therefore after the same Method with those who are ill of an *Asthma Montanum*, taking care to avoid every Things that dries ; In the Room of which Butter, Milk, Emulsions of Almonds and Melonseed, Barley Pissanes, and the like, will be of good Use.

C H A P. VII.

*Of the Diseases of GLASS-MAKERS
and GLASS-GRINDERS.*

IN the whole Train of Tradesmen, I do not think there are any who manage their Business more wisely than those concerned in the Glass work; for they work only six Months of the Year, that is, in Winter and Spring, and the rest of the Year they enjoy themselves; and, when they arrive at the fortieth Year of their Age, they seasonably bid adieu to their Trade, and spend the rest of their Time either in enjoying the easy Fruits of their former Labours, or in following some other Work. The hard, laborious Work which these Men do, and which cannot be borne but by Men of a robust Constitution, and that in the Vigour of their Age, is absolutely intollerable for a long tract of Time. Indeed I take the melted Mass, which floats in their Furnaces, to be inoffensive, at least I know no sensible Harm it does to the Workmen; for they never complain of that, neither is there any noisome Smell to be perceived in the Glass-houses. The Course of this Work does not allow me Time to enquire particularly into the Nature of that Mass of which the Glass is made, or into the mechanic Contrivance which form the Glasses, by the Intervention of Wind or Blowing. It is sufficient to our present Purpose, if we know that all the Injury, redounding to the Workmen from this sort of Work, is intirely owing to the Violence of the Fire, and sometimes the Addition of some Minerals calculated for colouring the Glasses. The Work-

Workmen are obliged to stand constantly half-naked, in the coldest Season of the Year, just by Furnaces, heated to the last Degree, and there to blow the Glasses with their Eyes constantly fixed upon the Fire and the melted Glass; so that their Eyes sustain the first Shock, and accordingly we find they often bewail their Misfortune in voiding a sharp waterish Humour, and grow slender and little, their watry Nature and Substance being exhausted and consumed by the intense Heat. The same Heat racks them with a perpetual and an insatiable Thirst, so that they are forced to drink often. But they drink Wine more willingly than Water, for whoever drinks Water upon a great Heat, from what Cause soever, will find it much more hurtful than Wine, as appears from the many Instances of those who have died suddenly by drinking cold Water upon great Heats.

They are likewise subject to the Diseases of the Breast; for, having nothing on but their Shirts, their Breasts are always exposed to the Air, and, when their Work is over, they are obliged to go in their Shirts from the Work-houses to colder Places: So that Nature, though strong and robust, cannot long bear such violent and sudden Changes; but must needs sink under Plurisies, Asthma's and chronical Coughs.

But far greater Misfortunes attend those who make the coloured Glasses for Bracelets and ordinary Womens Ornaments, and other Uses, for they cannot colour the Chrystal without using Borax calcined, and Antimony with some Gold; all which they reduce to an impalpable Powder, and mix it with the Glass, in order to make a Paste. Now while this is a doing, though they cover and turn away their Faces, they cannot avoid

void receiving the noxious Exhalations at the Mouth ; nay, it oftentimes falls out, that they fall down dead, or are suffocated, or, in Progress of Time, are afflicted with Ulcers in the Mouth, Gullet, and Wind-pipe, and at last die consumptive with Ulcers in their Lungs, as is manifest from the Dissection of their Bodies.

I have often wondered within myself how the Mixture of the Borax and the Antimony with the glassy Mass should produce such pernicious Effects : But certainly it is Matter of Fact that it does ; nor though I am not an Eye-witness of it (there being no coloured Glass made in this City) I have a satisfactory Account of the Matter from the excellent *Joseph de Grandis*, formerly my Auditor in the University of *Modena*, and at present a worthy Professor of Physic and Anatomy at *Venice*, where there are noble Glass-houses in the Island which goes by the Name of *Murano*. I hinted above, that the Mixtures of Things often impose upon the best Physicians, especially if exposed to the Operation of the Fire ; for, though *Delmont* calls Fire the Corruptor and Death of all Things, it is the Author and Parent of many Things ; And to this Purpose *Pliny* *, very agreeably to the Principles of Chemistry, observes, that, out of the same Matter one Thing is produced by the first Fire, a different Thing by the second, and a third Thing different from both by the third.

Those who make Looking-glasses, especially at *Venice*, are exposed as much as the Gilders to the noxious Quality of Mercury, in covering large pieces of Chrystal with Quick-silver, to make the Reflection brighter on the other side. It is probable this Art was unknown to the Antients, there

* Lib. 37. H. N. Cap. 26.

there being no mention made of it by *Pliny**, who in his *Natural History* describes the several Ways of making Looking-glasses. These Workmen therefore become subject to Palsies, Asthmas, and the above-mentioned Disorders. Accordingly, in the Island *Murano* at *Venice*, where the large Looking-glasses are made, we may see these Workmen beholding their own miserable Hue in the Glasses they handle, and cursing the Trade they chose to follow. By a Letter sent from *Venice* to the Royal Society of *England*, and published in the Transactions of that Society †, it appears, that those who are employed at *Venice* in covering the Looking-glasses with Quick-silver, often die apoplectic.

As for the Relief which Physic affords, I shall add nothing to what I have said before; the same Cure being proper in this Case, which was recommended above for such as use Minerals in their Way of Business, and work upon Metal.

C H A P. VIII.

Of the Diseases of PAINTERS.

PAINTERS are also usually subject to various Disorders, such as the Tremblings of the Joints, a Cachexy, a Blackness of the Teeth, a discoloured Complexion, Melancholy, and a Loss of Smelling; for it seldom happens that the Painters, who use to draw the Pictures of other handsomer and better complexioned than the Originals, are themselves

* Lib. 33. Cap. 9.

† Tom. 1. April-

selves either handsome or well-complexioned. For my Part, I have always observed, that all the Painters I know, either in this or other Towns, are almost always sickly; and, if we consult the Histories of Painters, we shall find they were not long-lived; especially if we confine our View to such as made a distinguishing Figure. History informs us, that *Raphael Urbin*, a very famous Painter, was snatched away in the very Flower of his Age; and *Balthasar Castilioneus* condoled his untimely Death in a very pretty Poem. It is true, the Diseases of this Sort of Men may be imputed to their sedentary Life, and the Melancholy that feeds upon them, while they retire from human Society, and bend all their Thoughts upon the Execution of the Designs they have formed in their Fancies. But the principal Cause of their Sickliness is the Matter of the Colours, which is always among their Hands and under their Nose; I mean the red Lead, Cinnabar, Cerus, Varnish, Oil of Walnuts, and Oil of Linseed, with which they temper their Colours, and several other Paints made of various Minerals. Hence it is that their Shops have such a nasty stinking Smell, which is chiefly owing to the Varnish and the aforesaid Oils, and is very offensive to the Head; and perhaps the Loss of Smell, usually among Painters, flows from no other Cause. Besides, when the Painters are about their Work, they have nasty daubed Cloaths upon them, so that they cannot avoid taking in at the Mouth and Nostrils the offensive Exhalations; which, by invading the Seat of the animal Spirits, and accompanying the Spirits to the Blood, disturb the Oeconomy of the natural Functions, and give rise to the above-mentioned Disorders. All the World knows, that Cinnabar is the Off-spring of Mercury, Ceruse is

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made of Lead, Verdigrease of Copper, and the Ultramarine Colour of Silver; for the metallic Colours are much more durable than those of a vegetable Extraction, and for that Reason the Painters value them more: Therefore it is plain, that almost all the Ingredients of Colours are taken from the mineral Kingdom, upon which account they must do harm, and by Consequence Painters must be liable to the same Distempers, though not in so violent a Degree, with the Workmen who work in Metal.

Fernelius * gives a pretty curious Account of an *Anjou* Painter, who was seized at first with a Shaking and Trembling in the Fingers and Hands, and afterwards with Convulsions in the same Parts, which likewise affected the whole Arm. Some time after the same Symptoms appeared in his Feet, and at last he was taken with such a violent Pain in his Stomach and both the Hypochondria, that neither Glysters, Fomentations, Baths, nor any Sort of Remedy gave him ease. The only Relief he had in the Violence of the Fits was to have three or four Men leaning with all their Weight upon his Belly, the Compression of which lessened the Torment. In this miserable Condition he continued for three Years, and then died consumptive. Our Author says, the noted Physicians were strangely divided in their Opinions of the true and genuine Cause of such a dismal Disorder, and that not only before, but after the opening the Body, for there was nothing preternatural to be seen about the Viscera. In reading this History, I could not but admire the open and candid Confession of *Fernelius*, who, pursuant to the Custom of truly great Men, as *Celsus* observes, makes this free Acknowledgment: *Omnes siquidem aberamus a scopo, & tota quod aiunt via errabamus,*

banus, i. e. *All of us mistook the Case, and were quite out of the Way.* He adds farther, that this Painter, having used not only to wipe his Pencil with his Fingers, but imprudently to suck it clean, it is likely that the Cinnabar, thrown upon the Fingers, was communicated to the Brain, and the whole nervous System, by the meer Continuity of the Parts; and that received at the Mouth, in sucking the Pencil, tainted the Stomach and Intestines with an inexplicable malignant Quality, which proved the occult Cause of the immense Pain.

The same is the Cause of their discoloured Complexions, and cachectic Habit of Body, as well as of the melancholic Fits they are usually subject to. It is said of *Antonius de Allegris*, commonly called *Corrigiensis*, from *Correggio*, the Place of his Nativity, that he was so melancholic and even stupid, that he had no Sense of the Value and Excellencies either of himself or of his Pieces, insomuch that he returned to his Admirers the Rewards they sent him, as if they had been mistaken in giving a great Price for those Pictures which are now above any Price whatsoever.

When Painters therefore are seized either with the above-mentioned Disorders, or with other common Diseases, care must be taken, that the common Remedies be blended with those particularly calculated for redressing the Disorders occasioned by Minerals: Of which above.

C H A P. IX.

Of the Diseases of such as work upon
BRIMSTONE.

AS Sulphur answers the Convenience of Life in several Instances; so it causes no slight Disorders in those who boil or melt it, or make use of it in their Work. Those who use melted or kindled Brimstone fall into Coughs, Hoarsenesses, Shortness of Breath, and a Running in the Eyes. The Analysis of Sulphur shews that it consists of a double Substance, one pinguious and inflammable, and the other acid and apt to extinguish Fire. Now, when the Sulphur is melted over a Fire, and much more when it is kindled, this volatile Acid arises in Fumes, which, being received at the Mouth, give rise to the above-mentioned Disorders, and particularly to the Cough and Soreness of the Eyes; for the soft and tender Structure of the Lungs and Eyes is signally injured by the pungent Acid. Hence *Martial**, in reckoning up the Tradesmen and Workmen at *Rome*, such as Coppersmiths, Money-coiners, Bakers, Jews, and others, who disturbed his Rest both Night and Day, insomuch that he was obliged to retire to the Country, brings in the Brimstone-workers upon the same Head, and distinguishes them by their blear'd Eyes.

Nec Sulphurata Lippus Insitor mercis.

The Force of a sulphureous Steam is sufficiently known to the Women, who, to make their Cloaths white, sinoak them with kindled Brimstone; besides, they frequently see that it discolours the

* Lib. 12. cap. 57.

the purple Roses, and makes them white; as the poet has it.

Tingit & afflatus Sulphuris aura Rosas.

In Germany they use to season their Hogheads with the Smoak of Brimstone, to make the Rhenish Wine keep many Years without being musty, as *Helmont* informs us in his *Treatise de Asthmate & Tussi*. The Acid of the Sulphur therefore, so injurious to the Breast, and *Aspera Arteria*, is the productive Cause of these Disorders. The Story of the Adultress is well known, who, upon her Husband's Approach, hid her Gallant under the Bed, and covered him with a Cloath which had Brimstone upon it; but was forthwith betrayed, for her Gallant was so struck with the fresh Smell of the Brimstone, that he could not forbear sneezing and coughing aloud. To the same Purpose is the Story of the Baker, who, seeing the Fire get hold of his Matches, or sulphurated Balls, which he used to kindle his Wood with, and fearing they would set fire to the House, run to put it out with his Feet, and was hereupon very near being suffocated: However, he was afflicted for many Days with a violent Cough and Difficulty of Breathing, by reason of the vesicular Structure of his Lungs, being constricted by the violent Acid of the Smoak: He seemed to receive some small Benefit from the use of the Oil of sweet Almonds and a Milk-diet; but in the Space of a Year he removed to the other World. *Etmuller*†, treating of the Disorders of Expiration, has an Observation of a most obstinate Cough and Difficulty of Breathing, proceeding from the Fumes of Nitre and Brimstone. If

it be objected, that Brimstone is commonly called the Balsam of the Lungs, I answer, that it merits that Title only when it is divested of its Acid, which is otherwise very plentiful. Hence both *Junchen*, in his *Experimental Chemistry*, and *Et-muller*, in his *Mineralogy*, informs us, that Sulphur is justly stiled, the Balsam of the Lungs, when its balsamic Fat is separated from the acid, corrosive Part. Now, as *Junchen* tells us, in the same Place, the acid Part is separated from the Sulphur, by subliming the Sulphur with Coral and Hartshorn, which imbibe its Acidity.

But how a great many Practitioners, especially in this Country, come to prescribe the Spirit of Sulphur in the Diseases of the Breast, I cannot see. I have read in Authors, that Sulphur is the principal Remedy in such Cases, and from thence fall into a palpable Mistake; as if the acid Part of the Sulphur was the same with the whole Concrete, and the Part were possessed of the same Virtues with the Whole. The like Mistake is observable in their Prescriptions of the long and continued Use of the Spirit of Sulphur in Broth, as an internal specific Remedy for the Itch, and that upon the Plea, that Brimstone is the chief Remedy, and indeed the only Basis of the Ointments against the Scab. The Workmen therefore, whose Diseases are our present Subject, ought to take care to avoid the Smoak of the Brimstone; and, to appease their Cough, ought to make familiar Use of the Syrup of Marsh-mallows, the Emulsions of Melon-seeds, Barley Ptisanes, Oil of sweet Almonds, and a Milk-diet.

C H A P. X.

Of the Diseases of BLACKSMITHS.

DAILY Experience vouches, that Blacksmiths are likewise blear-eyed ; which, as I imagine, is not so much owing to the Violence of the Fire upon which their Eyes are almost always fixed, as to the sulphureous Effluvia which exhale from the hot Iron, and strike or twitch the Membranes of the Eyes, so as to cause an Expression of Lymph from their Glandules, with a Blearedness, and often an Inflammation or Ophthalmia. It stands in the Records of Time, that *Demosthenes's* Father was a Blacksmith ; and him *Juvenal* describes as being blear-eyed ; for, speaking of *Demosthenes*, he has the following Verses.

*Quem Pater ardentis Massæ fuligine Lippus
Carbone, & Forcipibus, gladiosque parante
Incude, & Luteo Vulcano, ad Rhetora misit.**

Having observed, that no other Poet, so far as I know, gave *Fire* the Epithet of *Luteum* ; for they generally stiled it shining, rosy and clear, I thought at first View, that these Words *Luteo Vulcano* might signify the pale or yellow Colour which the sulphurous Steams of melted Metals imprint in the Smiths Faces, as I have seen it come to pass in the Casting of Guns : But, upon second Thoughts, considering that the first Syllable in *Luteo* is here short, it cannot signify a yellow Colour, but one somewhat muddy and clayey.

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However, there being a great Quantity of Sulphur lodged in the Substance of the Iron, it is no Wonder, that, while the Iron is fining, the thin sulphureous Particles fly out both from the Iron and the Fire, and, like sharp Stings, affect the Membranes of the Eyes, so as to cause sharp Rheums and Inflammations. I have met with many Blacksmiths who complained of such Disorders, for which I use to prescribe the Application of Milk and Barley-water, and such like temperating Things; and Bleeding, if the Inflammation be great. Inwardly they may use Whey, Emulsions of the cold Seeds, and a refrigerating Diet, which indeed is proper for all Artificers who work by Fire. Beets in particular are commended, on account of their keeping the Body soluble, because these Workmen use to be very costive: And accordingly *Martial* says*, *Fabrorum prandia Betæ*.

C H A P. XI.

Of the Diseases of such as work in LIME and PLAISTER OF PARIS.

LIME and *Plaster* are likewise offensive to those who burn, handle, or sell them. Every one knows, that Parget is ranked among Poisons; for it suffocates the Person who drinks it: Accordingly we learn from *Pliny*, that *L. Proculius, Augustus's* Favourite, killed himself by drinking of Parget, when he was tortured with an intolerable Pain in the Stomach. I have frequently observed that

* Lib. 13. Ep.

that those, who hoil, prepare, grind, sift, or sell it, do usually labour under a Difficulty of Breathing; and besides, they are costive, their Hypochondria are hard and distended, their Faces are discoloured, so as to resemble the Substances in which they work. This I have particularly observed of those who grind the boiled Plaister in a Handmill and sift it; and those who form the fine Plaister into various Pieces, especially Images and Statues for adorning Churches, great Halls, and Libraries. That the customary Use of these Effigies is very antient appears from *Juvenal**.

*Indocti primum, quanquam plena omnia Gypso
Chrysiippi invenias;*

In which Lines the Poet lashes the rich unlearned Crew, who, to gain a Reputation of Learning among the Vulgar, adorned their Libraries with the Effigies of the Philosophers. Though such Workmen have a Cover for their Mouths, they cannot avoid receiving the flying Particles of the Parget at the Mouth and Nose; upon which these Particles enter the Passages of Respiration, and, mixing with the Lymph, are formed into hard, chalkey Concretions, or, by daubing the winding Passages of the Lungs, intercept the Freedom of Breathing.

Here I shall take the Liberty to insist a little on the Nature of *Gypsum*, or fine Plaister; for the Authors who treat of Fossiles seem to leave the Nature and Constitution of *Gypsum* too much in the dark. *Dioscorides* † affirms, that it has an implastic astringent Virtue; and *Galen* backs the Assertion in several Places. *Pliny* asserts, that it

is near allied to Lime. An obstructing, suffocating Quality is ascribed to it by the Moderns, particularly *Cæsalpinus*, in his Book *de Metallicis*. *Amatus Lusitanus* attributes to it a very drying Virtue. *Those*, says he*, *who prepare Gypsum die of a Disorder in the Head; for the excessive Driness, occasioned by that Substance, renders their Heads weak, so that it cannot concoct and retain what it ought to concoct and retain, and thereupon the Matter falls on the inferior Parts, and so produces a Phthisic*. This is the Opinion of *Amatus Lusitanus*.

But I am convinced, that *Gypsum* is of another Nature, which perhaps has not been yet taken notice of; I mean, that it has an expanding and elastic Virtue, not like that of Lime, but directly contrary to it. For I have observed oftener than once, that the Masons in this City, which abounds with Porticos, when they pull down the antient Pillars which are ready to fall, the Houses being supported upon great Beams, and place in their Room new Marble or Stone-pillars, they make the Body of the Pillars of Stone and Lime; but for the Space of about two Yards towards the End, where the Pillar must be joined to the House supported by the Beams, they use this fine Plaster instead of Lime. This happening frequently in this City, which is the antientest on this Side of the *Po*, I took occasion to ask the Workmen, Why they did not continue to use Lime in perfecting their Work, as well as in the Beginning, and why that Plaster was preferred to Lime in the Close of the Work? They answered, That a Wall built with Lime sinks, but that one made with this Plaster rises upwards; and indeed it is wonderful to see, that, five or six Days after the Pillars are built,

built, the great Posts or Beams, which supported the whole House, are taken away with the greatest Ease imaginable, nay, they almost fall down of their own accord; whereas, had the Pillars been built with Lime all through, the Props could not have been removed without great Difficulty, or indangering the House by the Concussion.

We conclude therefore that this Plaister agrees with Lime in its coagulating Quality, for both of them, when tempered and dissolved with Water, are known to unite and cement. But, besides that, *Gypsum* discovers a great Elasticity, in raising great Weights upwards. I have also observed, that it presses downwards, and every way round it; only it exerts the greatest Strength where it meets with the least Resistance; for, it is observed, that if we raise a Wall of Brick and fine Plaister upon a Beam, and carry up that Wall to unite with another old Wall above it, the Beam though ever so strong will bend downwards, having nothing but Air underneath it; and this Bending proceeds not from an excessive Weight, for sometimes the Weight is very little, but from the Elasticity of the Plaister. Further, Lime enjoys this peculiar Property, that it is always moist and never decays, whence it comes to pass, that, near the Ground and at the Foundations of Houses, the Walls are almost as firm as Iron: And on the other hand fine Plaister decays and falls off of its own accord, near the Ground, but continues as solid as Lime, when it is used in the higher Part of the Wall, notwithstanding its being soaked with Rain, as it happens in Chimneys.

To return to the Subject first proposed, it is no wonder the Particles of this Plaister, conveyed through the Trachæa to the Receptacles of Breath, and there blended with the Serum which oozes
from

from the Glands, should produce such pernicious Effects, by pressing down and squeezing the fistular Ducts by their expansive Virtue, and so hindering the free Ingress of the Air. Now, for redressing the Injury contracted from fine Plaister, the Antients prescribed various Remedies, though indeed it is no easy Matter to prescribe properly. *Galen*, in his second Book *de Antedotis**, recommends a Lye made of the Ashes of the Vine-twigs. *Guainerius* † prescribes the Ashes themselves, and *Sennertus* commends Mice-dung. For my own Part, I have given in such Cases, not without some Relief, Oil of sweet Almonds fresh drawn, and Emulsions of Melon-seeds; but, generally speaking, I found that such as continued in this Business died asthmatic and cachectic. I would willingly have dissected the Corps of some of these Workmen; but neither Importunity nor Bribe will persuade our common People, to suffer the Inspection of the Bodies of those who die of any uncommon Disease: Nay, when they are importuned to it, upon the Consideration of the public Good, they fly in the Face of the Physician for being ignorant of the Cause of the Disease, which he has the Curiosity to inquire into after Death.

Lime is not so noxious to those who handle it as fine Plaister. New Lime, just taken from the Lime-kilns, burns and exerts a fiery Force; on which Account *Paulus Zaciba* || wonders, that any of these Kilns are suffered in Cities, the Evaporation which proceeds from them being unfriendly to the Breast. Besides, there is nothing which, after Burning, retains the Seeds of Fire longer than a Lime-stone; for if you keep it a
Year

* Cap. 7. † *De Ven.* cap. 8.
lib. 5. Tit. 4. Quæst. 7.

|| Q. M. L.

Year in a dry Place, and then dilute it with Water, it smokes and exerts the latent Fire in setting the Water a boiling. In Progress of Time, as it moulders and grows old, it loses a great Part of its igneous Force, and consequently is then less hurtful to the Workmen; though it always retains a corrosive Acrimony which stimulates the Throat and Eyes, and makes the Voice rough, but is easily repulsed and subdued by drinking cold Water, and the Emulsions of Melon-seeds and the cold Seeds. Lime makes the Hands of Bricklayers wrinkled, and sometimes ulcerates them, but frees them of the Scab; and for that Reason is justly reckoned a good Medicine against that Disorder, being qualified, by its alkaline Virtue, to subdue the Acid of the Itch: And with regard to this, *Willis*, in his *Pharmaceutice Rationalis*, recommends the Decoction of Lime in a *Diabetes*, for though that Decoction, says our Author, may seem to procure a Discharge of Urine by its heating and attenuating Qualities, yet it checks an immoderate Flux of it, by qualifying and breaking the acid Salts which give rise to the Fusion of the Humours. Upon the same Account it is mightily cried up by *Dr. Morton*, in a Consumption of the Lungs.

Some are of Opinion, that Quick-lime is possessed of two Salts, which remain quiet after Calcination; but when dissolved by Water, and raised to a mutual Conflict, occasion the Effervescence which is commonly talked of. But this Opinion is called in Question by *John Bohon*, in his *Meditations * de Aeris Influxu*, it being plain from Observation, that the fixed and purer Alcalis assume a Heat upon the Accession of a watery Moisture, without the Collision of an Acid. St.

Augustine

Augustine * was amazed to see Lime boil in Water, and be cold in Oil. To conclude, we cannot but own that Quick-lime is possessed of a great Quantity of alkaline Salt, since the Remedies prepared from it are of universal Use against fordid Ulcers, in which a Luxuriancy of Acids prevails. To correct, therefore, the Disorders which this sort of Workmen are sometimes subject to, it will be of use to exhibit a warm Decoction of Mallows and Violets, fresh Butter, and Milk itself, which corrects the Driness and Roughness of the Throat very effectually.

Thus far I have given an Account of such Workmen as are thrown into various Diseases, by the Malignity of the Minerals and Fossiles which they handle and use in the Way of their Business, with compendious Cures calculated for such Cases. For upon these Occasions the chief Business of a Physician is to restore the Patients to Health, with all possible Expedition, with proper and generous Remedies, since often we hear the miserable Wretches begging the Physician either to kill them or cure them directly. This, therefore, is the chief Caution to be observed in the Cure of such Workmen, that it must be short and expeditious, otherwise the tedious Weight of the Disease, joined to the Grief of their Mind, produced by the necessitous Circumstances of their Families, will throw them into mortal Consumptions. To this purpose is that golden Saying of the Divine *Plato*, † which, I presume, will not be unacceptable to the Reader. *When a Tradesman, says he, is taken ill, he must be cured by Vomiting, or Purging, or Caustics, or*
Incisions

* *De Civit. Dei*, l. 21. c. 7.
 385.

† *Dial.* 3. p.

Incision; for if a Physician tells him of a long protracted Regimen, and Bolstering up his Head, and the like, he presently replies, That he has not Leisure to be sick, and that it will be of no use to him to lead an idle, lazy Life, and neglect his Business. Upon this he takes leave of the Physician, and returns to his usual Way of Living; and thus, if he recovers, he does his Business, or, if Nature gives Way to the Disease, is set free by Death.

This I have frequently seen in the Way of Practice, that, if Tradesmen do not recover speedily, they will return to their Shops with the Sickness upon them, and often elude the prolix Cures of Physicians. Though these prolix Methods will not do with Tradesmen, yet they will suit a rich Man well enough; for these have a great deal of Time upon their Hands to be sick in, and sometimes the Ostentation of Riches moves them to counterfeit a Fit of Sickness, as *Martial* observed: And there are always Physicians enough ready to tend them for a very small Fee. *A rich Man, says Plato, is not confined or tied to a certain Work that he cannot be taken from, without putting a Period to his Life.* Besides, there is a certain kind of Professors who make a tedious Cure of such Diseases as are otherwise of short Duration, and would terminate in a Cure of themselves: They must keep to their old Method, in beginning with Lenitives, then come the Alteratives, particularly the Syrups, the Omission of which would be absolutely criminal in their Way: All these must be followed by cathartic Medicines, repeated Venesection, and a thousand other tedious Articles. In fine, they must always be at work, and suffer no Day to pass without a fresh *Recipe*. So that, with a small Alteration, we may apply to them the following Lines of *Horace*.

Quem

*Quem semel arripuit, tenet, occiditque medendo,
Non missura cutem, nisi plena cruoris hirudo.*

But, to return from these Digressions, the Cure of such Workmen, as handle metallic and fossile Things in the Way of their Business, will be happily shortened, if we take the principal Remedies from the mineral Kingdom, not forgetting Emollients from the vegetable Class, and the common Antidotes ; such as Venice Treacle, Mithridate, and those which are said to check the Malignity of Poisons by a specific Force : Purgatives and Vomits must likewise be given, and that in a double Dose, or rather larger, by reason of the Obstinacy and undaunted Nature of metallic Bodies. It will be of farther Use to consult the Authors who have writ of Poisons, particularly *Guainerius, Cardanus, Arduinus, Baccius, Paræus, Sennertus, Prevottius, Etmullerus*, and others ; for they propose a long List of Remedies for each peculiar Poison. By Way of Preservation an Emollient and a Milk-diet are much recommended. In these Diseases you must be very cautious of injoining Phlebotomy, for that is seldom of Use, unless there be an Inflammation in the Case ; and care must be taken to observe the Cautions laid down above, in order to guard the Mouth as much as possible from receiving the offensive Particles.

C H A P. XIII.

Of the Diseases of APOTHECARIES.

HAVING dispatched the first Part of our Task, let us now pay a Visit to other Shops, and first of all to those of the *Apothecaries*; where Health is said to reside as in her proper Mansion-house, though sometimes she is perhaps greatly injured there. For if we ask those who work in such Shops, whether they ever receive any Injury in preparing Remedies for the Health of others? they often complain of terrible Disorders; as in the Preparation of *Laudanum Opiatum*, in beating Cantharides for blistering Plaisters, and several other poisonous Substances, from which subtile Atoms exhale in the Beating, and fly to the Blood and Spirits through the open Passages of the Body. *Opium* causes a Stupidity and Lethargy, to avoid which *Etmuller* * advises the Operator to take Vinegar while he is employed in preparing *Laudanum Opiatum*, there being nothing which more powerfully corrects and breaks the narcotic Sulphur of the *Opium*. In like manner it is well known, that the pounding and handling Cantharides has raised a Heat of *Urine*. I know an Apothecary in this City, who, after carrying in his Hand the Root of *Arum*, and thereupon handling his Privities, was seized with so great an Inflammation of the Genitals, that it was followed by a Gangrene and a copious Flux of Blood, to the manifest Danger of his Life. My Lord *Verulam* † informs us, that the Bruising

* *De Letharg. c. 7.*† *Syl. Syl. Cent. 10.*

Bruising of *Coloquintida* has sometimes thrown the Operators into Gripings and obstinate Loosenesses. All the World knows, that the Cantharides are of a very volatile Substance, and highly injurious to the Bladder and the Kidneys. When the intire Fly is narrowly viewed with a Microscope, it appears all over armed with very sharp Points or *Spicula*; upon which Subject consult *Olaus Borichius*, in *Bonetus* his *Medicina Septentrionalis**, where he says, he observed the *Spicula* lesser in the Wings and Feet than in the Head, and takes that for a Solution of the Question, Whether the Cantharides should be used entire according to *Galen*, or without the Head, Wings and Feet, which *Hippocrates* orders to be cut off? Of the first Opinion is *Etmuller* †, who calls this a Dispute *de Lana Caprina*, upon the Plea that all the Parts of the Cantharides have an ulcerating Virtue. The Apothecaries therefore ought carefully to avoid the taking in the Dust which flies about in beating Cantharides, either by fortifying themselves beforehand, or in the very Time they are imployed about them. For this End they may drink copiously of Emulsions of Melon-seeds; and, to mitigate the Heat of Urine, Whey, and Milk itself will be very useful.

Some Apothecaries are much disordered, in the Preparation of Things which have a noisome Smell, as that of the Ointment of Marsh-mallows, which turns the Stomachs of some Operators, and sets them a vomiting. Nay, some are likewise affected with sweet Smells; for the Influence of Smells is truly wonderful, and they produce surprising Effects, according to the Idiosyncrasy of Persons. I am informed that in the Spring, when they make Infusions of Roses for their golden Syrups, and the whole

* P. 2. p. 816.

† *De Diur. Animal.*

whole Shop smells like a Bed of Roses, some Operators are seized with the Head-ach, and others with a Looseness.

Those therefore, who have such a quick and tender Sense of Smelling, ought to avoid such Smells as much as they can, and step out of the Shop every now and then to take the Air, or frequently smell to such odorous Things as they like best, and use to refresh them most. Concerning the offensive Smell of Roses, see *Sennertus* * and *Otto Tachenius* in his *Hippocrates Chemicus* †. *Levinus Lemnius* informs us ||, that the Inhabitants of *Arabia* are so over-whelmed with the excessive Sweetness of their Smells, that their only Refuge is smelling to stinking Things, as if they were a Person. *Gasparus a Reyes* ‡ has a pleasant Story, of one *Piscator* at the Court of *Portugal*, who was suffocated by the excessive Fragrancy of Smells, and lay for dead; but was brought to life by *Thomas a Vega*, who ordered him to be carried to the Sea-side, and to be rolled in the Sea-weed and Mud, by which Means, like a Sow wallowing in Mire, he was mightily refreshed. *Bacon* says §, that, upon the opening of the Heaps of Spices which have lain long covered, the By-standers, who approach first to take them out or handle them, are in Danger of Fevers and Inflammations.

CHAP.

* Tom. 1. l. 5. † De Occult. Nat. Mir.
 || Lib. 2. c. 9. ‡ Camp. Elys. Q. 99. § Nov.
 Organ. l. 2.

C H A P. XIV.

Of the Diseases of the CLEANSERS OF
J A K E S.

I AM here in some doubt, whether the Physicians, who value themselves upon a neat and clean Appearance, will not take it ill, that I carry them from the Apothecaries Shops, which smell for the most part of Perfumes, and where they deal as in their own Province, to take a View of the Houses of Office: But, considering they do not think it beneath them daily to inspect the Excrements of the Bladder and the Belly, in Quest of the Disorders of the Body, they ought likewise to allow of the Inspection of these Places, where such Excrements are laid ; and so give us leave to take a View of the Diseases of those who are employed to cleanse them, pursuant to that Saying of *Hippocrates**, *Medico necessum est ingrata intueri & immania tractare.*

Besides, it is not at all beneath or unbecoming a Philosopher, to descend, from the Contemplation of sublime Objects, sometimes to view mean Things, and to follow the Examples of Mechanics. Thus *Plato*, in his Enquiry into the *Nature of Beauty*, elegantly represents his admired *Socrates*, (when *Hyppias* despised him for introducing, in so noble a Research, a Man enquiring, Whether it was more proper to put a golden or an earthen Ladle into a fair and beautiful Pot, placed over the Fire full of good Pulse ? And said, that he disdained disputing with the Man who could ask
such

* *De Flat. n. 1.*

such a Question) as making the following Reply.
 “ You have spoken well and warily, *my Friend*,
 “ since it is expedient that you, who are dressed
 “ in such a splendid Manner, and excel all the
 “ *Greeks* in Wisdom, should converse with such
 “ a Man ; but surely there is nothing in my Con-
 “ dition which can hinder me from that Piece of
 “ Liberty.” Since therefore, in our present Age,
 Medicine is reduced to the Principles of Mechanism,
 I shall not be ashamed of an Acquaintance
 with the States and Conditions of the meanest
 Tradesmen, having nothing more at heart than the
 Discovery of Truth.

The Accident, from which I took occasion to
 write this Treatise of the Diseases of Tradesmen
 is as follows: In this City, which is very populous
 for its Bigness, and is built both close and high, it
 is usual to have their Houses of Office cleansed
 every third Year ; and, while the Men employed
 in this Work were cleansing that at my House, I
 took notice of one of them, who worked with a
 great deal of Anxiety and Eagerness, and, being
 moved with Compassion, asked the poor Fellow,
 Why he did not work more calmly and avoid o-
 ver-tiring himself with too much Straining ? Upon
 this the poor Wretch lifted up his Eyes from the
 dismal Vault, and replied, That none but those
 who have tried it could imagine the Trouble of
 staying above four Hours in that Place, it being e-
 qually troublesome as to be struck blind. After
 he came out of the Place, I took a narrow View
 of his Eyes, and found them very red and dim ;
 upon which I asked him, I they had any usual Re-
 medy for that Disorder ? He replied, their only
 Way was to run immediately Home, and confine
 themselves for a Day to a dark Room, and wash
 their Eyes now and then with warm Water ; by
 which

which Means they used to find their Pain somewhat assuaged. Then I asked him, if he felt any Heat in his Throat, and Difficulty of Respiration, or Head-ach? And whether the Smell affected their Nose, or occasioned a Squeamishness? He answered, That he felt none of those Inconveniencies; that the only Parts which suffered were the Eyes, and that if he continued longer at the same Work, without Interruption, he should be blind in a short Time, as it had happened to others. Immediately after he clapt his Hands over his Eyes, and run Home.

After this I took notice of several Beggars in the City, who, having been imployed in that Work, were either very weak-sighted, or absolutely blind. Now I do not wonder that the tender Structure of the Eyes is offended by such an ugly Exhalation. *Ballonius* * relates the Case of a poor mean Workman at *Paris* who had sore and weak Eyes, the Cause of which he imputes to his Trade, for he used to cleanse the Streets from Dirt. But I ever was, and still am at a Loss to form a solid Reason, why the Eyes are the only Parts that suffer in such Cases, and how the soft Texture of the Lungs escapes, as well as the Brain, which one would think might easily be affected by the Steams reaching to the Nostrils.

I am of the Opinion, that the Steam arising from such Places, when stirred, is a volatile Acid; of which we may gather a probable Proof from this, That the Brass and Silver Pieces of Money become black in the Pockets of these Workmen, that Brass Vessels, placed in Kitchens near the House of Office, are usually stained, and that Pictures contract a Blackness when reached by such Exhalations. But at the same Time one would
think

think such *Effluvia* would offend the Lungs, there being nothing more injurious than an Acid of what Nature soever to the Lungs, as well as to the Mass of Blood, which is naturally possessed of a sort of Sweetness, which is obvious even to the Senses themselves: And yet only the Eyes are affected by such *Effluvia*. I doubt if the Curious will be satisfied with this Solution of the Matter: That, as some Poisons bear a peculiar Antipathy to certain Parts of the Body, *Cantharides* to the Bladder, and the Cramp-fish to the Nerves, so these Steams, arising from human Ordure, after three Years lying, assume a particular Nature which injures the Eyes only, and is inoffensive to the other Parts. For my own Part, I cannot rest satisfied in this Solution, and therefore do not offer it as an Argument of due Weight and Solidity.

There is nothing indeed which Physicians boast more of than this particular Enmity, which certain external Things bear to certain Parts of our Body; and, by having recourse to this, they solve the most intricate Questions: But at this rate they only explain *Obscurum per Obscurius*. *Olaus Borichius*, in *Bonetus* *, denies, that the *Cantharides* are more offensive to the Bladder, than to the other Parts, by their own specific Virtue; notwithstanding that they display their ulcerating and pungent Force upon the Bladder, both when taken in at the Mouth, and when outwardly applied in blistering Plaisters: The Account he gives of the Matter is this. The volatile Salts of the *Cantharides* being blended with the *Serum* of the Blood, and so conveyed with the Urine to the Bladder, which is not guarded with any mucous Matter, do readily gall and excoriate it, without producing the same Effect in the other Parts, where

* *Med. Sept. p. 2. l. 8.*

where the *Serum* alone is not their Vehicle, but also Phlegm, the Blood, and Pituita, which Mixture palls their Force. In pursuance of this Notion it may be more reasonable to offer, that the Steams of Jakes do, with their thinnest and sharpest Particles, gall the Eyes, these being the most obvious Parts, and possessed of the most exquisite Sense; and thus, forcing out the lachrymal Juice, join with it so as to form a new Substance, which is noxious only to the Eyes, and not to the other Parts, which do not afford the like Juice. *Olaus Borichius* * relates the Case of a Vintner, who used to tremble and fall into a cold Sweat merely upon seeing Vinegar; upon which he asks, Whether the acid Vapours are injurious to his Eyes and his Nostrils?

Whatever be the Cause and Manner of these Steams, by which they affect the Eyes more than the other Parts, it is certain, that the Eyes are, by their natural Constitution, equally ready both for *Susception* and *Emission*. That Blearedness is infectious, and that a sound Eye receives the morbidic *Effluvia* from the bleared Eyes of another is plainly made out by Experience, and affirmed unanimously by the leading Men of our Profession †. We all know that Saying of *Ovid*'s.

Dum spectant oculi læsos, læduntur & ipsi.

In like manner that Bewitching, which is said to be performed by a Cast of the Eye, seems to be brought about by a bright Emanation from the Eyes of the Inchanter, which insinuates itself into the Eyes of another, as being somewhat allied to it, and thus infects them. Hence *Plautus* says,

*Exeundum hercle tibi foras,
Conspexitatrix cum oculis emissivis.*

* *Æt. Hassn.* Vol. 4. Ob. 44.

† *Vid. Gal. p. d. Diff. Feb. cap. 3. Sennert. T. 2. l. p. c. 4.*

I know a young Lady of noble Birth, who was brought almost to a Consumption, without Relief from any Remedies, till upon my Request she was snatched from the Bosom of an old Grand-mother who loved her intirely, and bred her up with other young Girls. The old Woman cried out against me, for possessing the Grand-child, she loved so dearly, with the Notion of her being a Witch, and would not by any means be persuaded, that it is the peculiar Fault of old Age to send forth certain Emanations from the Eyes, which are not wholesome for those of tender Years ; and that, as it is the Province of the Eyes to breathe forth sometimes Love, and sometimes Hatred, so Love is more peculiarly the Province of youthful Years, than of those of old Persons, who have commonly a sour and rugged Look.

This is not a Place for enquiring further into the Nature of the Eyes ; so I shall only stay to quote a noble Passage out of *Plato**. He brings in *Socrates* unfolding the Meaning of that famous Inscription in the Entry of the *Delphic* Temple ; *Nosce teipsum*. “ Have you not observed, says “ *Socrates* to *Alcibiades*, that the Face of a Man “ looking upon the Eye of another, is in the most “ prominent Part, or the Pupil, of that others “ Eye, exhibited as in a Glass ? Thus the Eye at “ last gets a View of itself, when it on all Hands “ looks on another Eye, but is particularly careful to observe that which is best in the Eye, and “ that by which itself sees : An Eye therefore, in “ order to perceive its own Picture, must look “ upon another Eye.”

To return to our Subject : The Cleansers of Jakes being of necessary Use to all Cities, it is but reasonable, that the Art of Physic should provide

some Relief for them ; especially considering, that the Civil Law * was so favourable to them, as to prohibit the offering the least Injury to them, even though they should casually penetrate into another Man's House. I have advised them to put transparent Bladders over their Faces, as those do who polish red Lead ; or to spend less Time at once in cleansing the Jakes ; or, if their Eyes are weak, to leave off that Business, and apply themselves to some other Trade, for fear of being obliged, for the sake of sordid Lucre, to lose their Eyes, and so beg their Bread. Experience itself has taught them, and indeed it is agreeable to Reason, that, keeping within a dark Room is very proper, as well as washing the Eyes with warm Water, which mitigates the Heat of the Eyes, and lessens the Pain, which, like a Thorn pushed in, occasions the Contraction of the nervous Parts, and consequently an Inflammation. If the Eyes are very red, and there is Ground to apprehend a true Inflammation, I order Bleeding, and as soon as the Heat of the Eyes is a little abated, I advise them to wash them with Muscadine-wine, which in this Case is an excellent Remedy. For it invites, in a manner, the animal Spirits to come from the Brain and the optic Nerve to return to the Eyes, from whence they had been driven by the sordid and penetrating Damps.

In antient Times this mean Service of Cleansing Jakes was put into the List of Punishments, as I intimated above in speaking of the *Damnati ad Metalla*. Accordingly in *Pliny* † we find the Emperor *Trajan* directing him, by Letters, actually to inflict the adjudged Punishment upon such as were condemned, and were not released in the Space of ten Years after ; but to imploy the old Men, who had

* Lib. 1. ff. de Cloac. † Lib. 1. Ep. 41.

had been condemned ten Years before, in such Services as are not much short of the Punishment. For such *Damnati* used to be appointed to cleanse Baths and Houses of Office. Perhaps some will reflect upon me, for spending so much Time upon such Places of Nuisance; but there is nothing, how nasty soever, which is beneath the Regard of an Inquirer into natural Things, and far less of a Physician. Do but read in *Cassiodorus* † the Epistle of King *Theodoric* to the Inspector of the *Roman* Jakes, in which that great Prince cries up the splendid Jakes of the City of *Rome*, which proved such an Object of Admiration to all who saw them, that they seemed to surpass the greatest Wonders of other Cities.

CHAP. XV.

Of the Diseases of FULLERS.

THERE is nothing more frequently met with in antient Writers, than the Name *Fullones*; though at this Day we are altogether in the dark as to the kind of Work in which they were employed. *Pliny* * makes mention of the *Lex Metalla*, which the Censors, *C. Æmilius* and *L. Camillus*, laid before the People, in order to be imposed on the *Fullones*. In *penult. Sect.* of the Law, *de Rebus Dubiis*, we find these Words. *Jabollenus*, who had *Flaccus Fullo* and *Philonius Pistor*, gave to his Wife in Legacy *Philonius Pistor*. But *Ulpian* ranks the *Fullones* among Traders, and *Varro* † makes them part of a rural Family.

But, after all, we gather from antient Writings,

F. 2 that

† Lib. 3. Ep. 30. * Lib. 35. H. N. c. 17.

‡ *De Re Rust.*

that the *Ars Fullonica* of Antiquity consisted in scouring Wool, and taking Spots and Stains out of Cloaths. For the People of *Rome* used to wear white Gowns, which being apt to stain, were often in the Fullers Hands to be cleaned, and for that End the Fullers used to expose them to the Smoak of burning Brimstone, as *Pliny* asserts, and as we do to this Day, when we mean to make Silk or woollen Garments white. For the acid Exhalation of the Brimstone has such a wonderfully whitening Virtue, that it makes purple Roses turn white.

The Streets of *Rome* being in former Times, as well as now, either dirty or dusty, the Citizens no sooner dawbed or spotted their Gowns, than they sent them to the Fullers, who washed them first with a coarse sort of Chalk, and then with another sort called *Gimolia*. In Imitation of whom, at this very Day, when Oil falls upon a Coat, the good Women are wont to prevent its penetrating and spreading further, by immediately covering the Part with Potters Clay, or Fullers Earth, and so leaving it to dry and fall off.

The *Fullones* likewise made use of Man's Urine to dye Garments of a Purple Colour. *Martial* * has a noble *Epigram*, in which he recounts several Instances of stinking Things, which were all out-done by a nasty Punk; and among these he reckons a Fleece of Wool twice steeped in *Murice*. In another of his *Epigrams* he tells you † *Thais* stinks worse than a Fuller's Pitcher.

————— *Fullonis avari*
Testa vetus, media sed modo fracta via.

I pass

* Lib. 4. Ep. 4.

† Lib. 6. Ep. 63:

I pass over the ingenious Coments of Interpreters concerning the *Fullones avari testa vetus* which smelled so rank, and the Cause of the noisome Smell of a *Vellus Murice bis inquinatum*, and shall only mention the ingenious Conjectures of the learned Zarottus in his Book *de Medica Martialis, Tractatione*. The *Fullones*, says he, the Dressers of Wool, and the Dyers made use of human *Urine* in their Way. This we have attested by *Pliny*†, who says, human *Urine* is a Remedy against the Gout, because Fullers are never troubled with it. The same Inference may be drawn from *Galen*||, who acquaints us, that *Quintus*,* a Physician of no small Note in his Time, regarded the Inspection of *Urine* so little, at a Time when most of the other Physicians, as well as those of our Days, formed all their Conjectures from the Piss-pot, that he used to say, *It was the Fullers Business to mind Urine*. And *Athineus* * vouches for the same Truth, in relating the Opinion of *Mnesitheus*, an *Athenian* Physician, who affirmed, that the *Urine*, voided after a large Dose of Wine, is so much sharper than the ordinary, that the Scourers may use it with better Success, for the cleaning of Garments.

Upon the whole it appears, that in the Days of Antiquity the Fullers did commonly make use of *Urine* in scouring Wool and Cloaths, and to this very Day the same Custom is kept up. For the Wool-combers and Weavers have Barrels or Tubs in their Houses, where all the Workmen make their Water, and in which they keep their *Urine* till it is putrefied, in order to use it in the Way of their Business. Accordingly I observe, that, when I am called to visit this sort of Tradesmen,

F 3

I per-

† Lib. 28. H. N. c. 6. || Lib. 3. de San. Tuend.
c. 13. * Lib. 11. c. 10. Dipnos.

I perceive an odd sort of Smell proceeding from the said Tub.

Now the Use which our Fullers make of the Urine is this : After the Cloth, or any Woollen Manufacture, is woven, to cleanse it from the Oil and other Filth, they fill a Wooden Vessel with equal Parts of Urine, kept as above, and warm Water, with a certain Quantity of *Venice Soap* ; in this Vessel they dip the Cloth, and, to make the Liquor penetrate the better, press it with their Feet, repeating the Work twice or thrice with fresh Sods. This done, they squeeze out the Liquor in a Press, and then wash the Cloth with clean Water and *Venice Soap*, which renders it so white as readily to receive any Colour. It is probable, therefore, that the antient *Fullones* observed the same Method of putting the Woollen Garments into Urine, and trampling upon them with their Feet ; which gave *Pliny* occasion to say, that they are not apt to be gouty.

Rome being antiently a very populous City, in which little or no Silk was used, the Fullers and Dyers being frequently imployed in washing spotted Gowns, and dying Wool with Urine, used to produce a nauseous Smell in the Streets by throwing out the Stone-vessels, in which they kept the Urine, as often as they broke.

But to return ; Fullers and Clothiers being obliged to pass their Time under the Influence of the noisome Smells of stinking Urine and Oil in a hot close Room, and that sometimes half-naked, are almost all of them cachectic, wan-coloured, short-breathed, troubled with Coughs and a squeamish Stomach. For the Air being pent up, and impregnated with such corrupt Smells, when it enters the Organs of Respiration, the Lungs cannot but sustain some Damage from these oily and rank
Atoms ;

Atoms; and the whole-Mass of Blood must necessarily be infected, these foul Particles being conveyed by the Circulation to the principal *Viscera*, and indeed all over the Body. Add to all this, that these oily, fat Vapours easily obstruct the Pores of the Skin, and consequently occasion all the Mischief which are known to attend a scanty Perspiration.

Hippocrates gives us several Histories of the Diseases of Fullers: But the most curious of all is his Account of a certain sickly epidemic sort of Indisposition, which carried off many Fullers*. *The Fullones*, says *Hippocrates*, *had both sides of the Groin hard and protuberant without Pain; about the Os Pubis and the Neck they had large Tubercles of the same Sort, which were followed by a Fever before the tenth Day. After they broke they were seized with a Cough.* *Valesius*, commenting upon this Place, applies the Case only to one particular Fuller, and takes it for a Fiction, that all Fullers were ill of one common Distemper. But the other Interpreters, such as *Foesius*, *Mercurialis*, and *Marinellus*, understand it of the whole Body of the Trade, which is favoured by the Greek Text, τῶν γυναικῶν οἱ βαρεῖνες. We have Reason to believe, that those who follow this Trade have an unfavourable Constitution, different from that of other Tradesmen, which is produced not only by their coarse and unwholesome Food, but likewise by the Inconveniencies of their Trade. For, as I said before, the Manner of Exercise, and the Nature of Business, makes some People more liable to Distempers than others. Thus *Hippocrates* † tells us of a certain Season in which the vulgar People were liable to many violent Diseases, and the Men more than the Women; and, among the Women, the

Slaves were in much the worst Condition. *Pliny*||, in like Manner, says, that Sickneſs rages ſometimes among the great Men, and ſometimes among the Servants and Slaves. In the Country of *Modena*, in 1690, I obſerved a rural epeidimical, tertian Fever, which ſeized only the Country People; and the next Year I met with another ſort of Fever, which attacked only the Citizens, but ſpared the *Jews*; as *Palmarius* obſerved of a Plague at *Paris*, that it did not ſeize upon the Tanners, from all which it is probable, that the Body or Generality of Fullers, pointed at by *Hippocrates*, were all ill of ſome common Diſtemper through ſome unfavourable Conſtitution of the Weather; perhaps a ſoutherly Wind, which colligated the groſs Humours, and threw them upon the Glandules of the Neck and the Groin, by which Means they underwent the ſame Fate, their Diſpoſitions being much of a Piece, by reaſon of their being equally ingaged in one ſordid Trade.

To fall upon ſome compendious Method, for relieving theſe poor Tradesmen, we muſt have reſource to *Pharmacy*, which affords the principal Remedies for this Caſe. The chief Remedies are Emetics, eſpecially of the antimonial Kind, which are particularly calculated for the Cachexy and ſlow Fevers, uſual in this Caſe, and, by Experience, are found very beneficial to this Sort of Workmen. In like manner ſtrong Purgatives, and ſuch as carry off groſs Humours, are very proper: For thoſe of the milder Form, being unable to overcome the Crude and and ſluggiſh Toughneſs of the Humours, do rather excite Commotions, than afford Relief. The aperient Medicines, calculated for removing Obſtructions, ſuch as *Fernelius's* cachectic Syrup, *Willis's* lixivial Wines, Spirit of Urine, and Urine itſelf drank, are of good

good Use. In Bleeding we must be very cautious ; if the Disease be acute, it is not improper ; but then we must not draw so much Blood from these Workmen as from other Persons, because their Blood is for the most Part foul and fizy.

In the Days of Antiquity, especially at Rome, where there were so many Baths for public Use, Workmen of sordid Trades received considerable Benefit by washing off the Impurities contracted in their Way of Business, and retrieving their Strength in Baths, as *Baccius de Thermis* well observes. But now a-days those excellent Provisions are sunk, and so the City-tradesmen are deprived of a singular Benefit. To make up this Loss, when they go to-bed, let them endeavour to wipe off the Matter which hinders Perspiration, and correct the noisome Smell which attends them, by washing and rubbing their Bodies with a Sponge dipped in hot Muscadine-wine ; and, by way of Precaution, upon all Holy-days, I would advise them to wash themselves at Home in sweet Water, and walk abroad in clean Linnen. For it is not to be imagined how much the animal Spirits are exhilarated by cloathing the Body with clean Things : And for this Reason I cannot enough decry that vulgar Opinion, which even some Physicians entertain, that sick People must not change their Shirts or Sheets for fear of becoming thereby weaker. To this purpose is that admirable Saying of *Hippocrates* * ; *It gratifies sick People, says he, to have every Thing clean about them, whether drink or Meat, or whatever they see or touch ;* which Place is judiciously commented upon by *Vallesius*.

Hence, I cannot but wonder, that *Lazarus Mes-sionerius* †, in his new Doctrine of Fevers, should

* 6 Epid. Sect. 4.

† Exerc. 5.

find fault with the Physicians who order the changing of Shirts and Sheets in Fevers; and that upon the Plea, that Shirts newly washed have a lixivial Quality, which produces a Toughness and Clamminess: For every one knows *Lixiviums* are possessed of a deterfive resolving Virtue. It is true, he quotes the learned Lord *Verulam's History* of Life and Death, to prove that foul Linnen strengthens People in Fevers; but, with the Leave of so great an Author, I cannot see how that should be. *Hippocrates* indeed asserts, that we ought to put on clean Cloaths in Winter, and in Summer such as are dirty and daubed with Oil. But *Galen* * reckons this Book to be none of *Hippocrates's*, but written by one *Polybus*. Besides, the Place relates to the Diet and Conduct of healthy People, the Tenor of the Discourse tending to direct how fat People should become lean, and lean People fat: For it is possible, that frequent Washing and Shifting is not proper for thin Bodies in the Summer, lest they should grow leaner, by too much Perspiration and Diffipation of the Spirits.

I cannot on this Occasion pass by the Words of the learned *Vallesius*; *The common Herd of Physicians*, says he, *are to be blamed, in not allowing their Patients either to change their Shirts or their Sheets, nor to wash their Hands and Face, nor indeed any Thing which belongs to Cleanness and Sweetness, notwithstanding the Disease continues for some time; as if it were of so much Importance to wallow in their own Filth, and as if that did not increase all manner of Putrefaction.* See likewise *Levinus Lemmius* and *Gaspar a Rejes*. We conclude therefore, that we cannot too much recommend to Fullers and all others, who live by sordid, slovenly Trades, the frequent

* In Lib. de Salub. Diet. n. 3.

frequent shifting of their Linnen, and keeping their Body clean; that by this means they may prevent, as far as it is possible, the Diseases which flow from Filth and Nastiness.

Before I pass from the Fullers-shops to those of the other Tradesmen, I shall here insert a noble Remark, which the learned *Zarottus* has made upon the above-quoted *Epigram* of *Martial*. In *Martial's* Time it was a customary Thing for the People, who walked the Streets of *Rome*, to be annoyed with the Smell of the Fullers Pitchers which were thrown out upon the Streets: And from thence *Zarottus* makes a probable Conjecture of the Occasion of the Tax laid by *Vespasian* upon Urine, mentioned by *Suetonius*. For it being probable, that at this Time Barrels or Tubs were set in public Places for receiving the Urine, which was so much made use of for cleaning Garments, and for the Purple-dye, he conjectures, that *Vespasian* took occasion from thence to impose this Tax, Money being still acceptable, let it arise from what it will: And *Cedrenus* attests, that the *Greek Emperors* followed the same Example. *Macrobius* insinuates, that such Urine-barrels were set in the public Places, when he brings in *Q. Titius* checking the drunken Judges to this Purpose: *There's no Pitcher in the Lane which they do not fill, for their Bladder is always full of Urine.*

Having upon this Occasion dwelt so long upon the Consideration of Urine, I cannot forbear mentioning what I have observed oftener than once of the aperient Power of Urine and its Efficacy in exciting the Menfes. I know several Nuns who, after labouring under a Suppression of the Menfes for several Months, without any Relief from the common Medicines, have recovered a clear bright Complexion by drinking their own Urine, which
unlocked

unlocked the Obstructions, and brought on the Menfes, infomuch that they make a familiar Use of this Remedy.

I know very well, that the Drinking of Urine in several Diseases is no new Thing, particularly in a Dropsy; though, as *Celsus* † tells us, it was of unlucky Consequence to a Favourite of King *Antigonus*, who killed himself by drinking his own Urine; where it is observable, that the same Author says, he was a Man notoriously intemperate. But this Remark of the Force of Urine, in promoting the menstrual Flux, is countenanced by *Pliny**, who says, That the Menfes of Women are promoted by the Steams of the Urine of Boys under the Age of Puberty. And indeed, it is agreeable to Reason, that this Remedy may be very proper, the Experiment of which is easily made, especially if the Urine be discharged in the Morning, which *Hellmont* ‡ calls † the Urine of the Blood. As *Sal Armoniac* and its Spirit are of use against Obstructions, and as our artificial *Sal Armoniac* is made of human Urine and common Salt; (the native which was formerly brought out of *Africa* being the Product of Camel's Urine in the Sand) So human Urine, impregnated with various Salts from the Mass of Blood, is possessed of an aperient Virtue. *Solander* || tells us, he ordered Country People to drink their own Urine for a Hardness of the Spleen and Liver, and found it successful. But, after all, I cannot but say, that I look upon the Urine of a healthy, sound Man to be much more conducive to Health than that of a sickly Person, as *Rosinus Lentilius* shews § in the *German Ephemerides*, de
'AUTS-

† Lib. 3. c. 21.

* H. N. Lib. 28. c. 6.

‡ De Sextup. diges. n. 79.

|| Conf. 2. se. p.

§ Dec. 3. An. 2. Ob. 116.

Ἀντεροποσίας *examine*. But the Mischief is, it is a hard Matter to persuade People to drink other Folks Urine, unless it be the Urine of a Child ; and that I take to be weaker than a Man's Urine ; for it is commonly discoloured, and affords but little Spirit, or volatile Salt.

Every Pretender to Chemistry has made some analytical Enquiry or other into the Nature of human Urine. For it being, by the Consent of all, possessed of a deterfive and soapy Quality, by Virtue of the various Salts of all Kinds which are lodged in it, it is not so easy to determine which of them has the ascendant. For while the *Serum*, or watery Part of the Blood, circulates in the Blood-vessels, it absorbs Salts of various Kinds, in Proportion to the Diversity of Things we eat and drink, which have so many various Tastes ; these Salts it carries along with it, through the *Renal Tubuli*, to the Bladder ; and from thence it comes, that the Urine has various and different Tastes, though, generally speaking, a saltish Taste with some Bitterness is the most predominant.

Dr. *Willis* wrote a very pretty Treatise of Urines, in which he allots to human Urine a great Proportion of *Serum*, a lesser Proportion of Salt, Sulphur and Earth, and a small Quantity of Spirit. That human Urine has a great deal of common Salt in it is plain from the chemical Operations, for an acid Spirit is drawn from it ; but of what Sort and of what Nature the urinous Salt is, is not so easy to determine, notwithstanding that the Masters of our Profession have been at a great deal of Pains in endeavouring to do so.

Helmont * fairly confesses, that the Salt of human Urine has not its Fellow in the whole System of Nature ;

* *In Sext. Digest. n. 58.*

Nature; for it differs from Sea-salt, Fountain-salt, Rock-salt, Sal-gem, Nitre, Salt-petre, Alum, Borax, and from all natural Salts, as well as the Salt of the Urine of Brutes. In the mean time I take it to be a much harder Task to determine the Nature of the Salt of human Urine, than to find out that of any other Animals; for the Brutes have a much simpler Way of Feeding than Men, who throw all in together, hard and soft, roast and boiled; however, every one knows, that from human Urine are prepared specific and generous Remedies for various Uses, especially against several chronical Diseases; and in this our Age the Spirit of *Sal Armoniac*, which is the Off-spring of Urine, passes for a *Polychrestum*.

To return to my first Subject, which was the stinking Urine made use of by Fullers in cleaning Garments, I know, that the Chemists have made their Trial both upon the Urine of a sound Man just discharged, and upon stale Urine after a long Digestion in Horse-dung; but I do not find, that there's much Difference between the Salt and volatile Spirit of the one and those of the other. The Authors of the *Collectanea Chemica Leydensia* make use only of the recent Urine of a sound Man, in their chemical Operations; but the Fullers find a greater deterfive Virtue in that which is stale, and of a rank Smell, though they are ignorant of the Cause of it. *Aristotle* * puts the Question, Why the holding of ones Water long in the Body makes it stink the more when it is made? and answers problematically, That perhaps the longer Stay in the Body makes the Urine thicker and grosser; whereas that which passes soon off approaches nearer to the Nature of the Liquor which was drank. But perhaps he had given a more satisfactory Solution, if he

he had said, that Urine long retained in the Body is the *Urina Sanguinis*, i. e. that which carries along with it the Impurities of the Mass of Blood; and the other is *Urina Potus*, or the Urine of the Drink only. Accordingly, it is possible, that human Urine, being kept long out of the Body, and fermented in the Fullers musty rank Pitchers, may grow sharper upon the Exhalation of the watery Humour, and so prove more abstersive for the Fullers Use. *Columella* * recommends stale, human Urine, thrown in at the Mouth and Nose, as a Remedy for scabby Sheep; nay, when they are all over Blisters, he bids you lay them in a Slough, or a Ditch, where the whole Flock may piss upon them, by which Means they will recover.

Here it may be objected, If human Urine is of such sovereign Use, if it affords so many aperient Remedies which defeat chronical Diseases, and if, for that Reason, the Fullers of old were free from the Gout, how comes it to pass, that these same very Fullers were cachectic, and liable to lingering slow Fevers, and other Disorders arising from Obstructions? To this I answer, that these Workmen became liable to such Disorders, not so much through the noisome Smell of the fetid Urine, as through the Influence of the oily Wool, and their long Stay in close, nasty Places, where they worked half-naked; though at the same Time there is no manner of doubt, but that the stinking Exhalations, continually received at the Mouth and Nostrils, must needs taint the animal Spirits: And as staying too long in a Place filled with sweet Scents is injurious, so the same Conclusion is justly formed of those of the unsavoury Kind, notwithstanding that they are sometimes of good Use to rouse the drooping Spirits.

Before

Before I make an end of this Chapter, I cannot but take notice, that in this very City (*Modena*, I mean) the Fullers Trade, which is now almost lost, was antiently so flourishing and profitable, that one of the Trade grew so rich as to regale the People of *Modena* with a Gladiators Shew, at the same Time that a Shoemaker did the like at *Bolonia*. Which gave *Martial* * Occasion to expose the Madnes of these two Tradesmen, in hunting after popular Applause by the Profusion of their Riches.

*Sutor Cerdo dedit tibi, culta Bononia, munus ;
Fullo dedit Mutinæ, dic ubi Caupo dabit ?*

In former Times the *Modenese* Wool was mightily in request, especially that which grew upon the Sheep in the open plain Country between the *Panaro* and the *Secchia*. Hence *Columella* †, speaking of the *Gallic* Wool, gives the Preference to that taken from the Sheep which feed upon the hungry Ground about *Parma* and *Modena*.

C H A P. XVI.

*Of the Diseases incident to OILMEN,
TANNERS, and other such Trades.*

THERE are many other Shops, besides those mentioned above, which affect the Nose, and make the Tradesmen earn their Money with Uneasiness. Such are those of Oilmen, Tanners, Fiddlers

* Lib. 3. Ep. 7.

† Lib. 7. c. 3.

Fiddle-makers, Butchers, Fishmongers, Sellers of Salt-meat, Cheesemongers, and Tallow-chandlers. For, when I venture into these Places, I confess they turn my Stomach to some Purpose, and I am not able to bear the nauseous Smell without the Head-ach, or some Inclination to vomit. For this Reason these Tradesmen are justly prohibited to exercise their Callings in the Cities; the Suburbs or adjacent Parts being allotted them for that Exercise, as we read in *Cæpolla**, *Paulus Zacchias* ‖, and others. In pursuing the several Heads proposed in this Chapter, we shall begin with the Oilmen.

In this Country, which abounds with Nuts, there is a great deal of Nut-oil made, which all the Inhabitants use in their Lamps; Oil of Olives being seldom used by reason of its high Price: For there are no Olive-trees nursed all the Country over, on either Side of the *Po*; and what Oil-olive we have is brought to us from *Tuscany*. Now the Oil is drawn from the Nuts, after the same Manner with the Oil of Olives: For they take an Heap of Kernels ground in Mills and reduced to a soft Paste, and boil it over the Fire in a great Copper Frying-pan; after which they put the Paste into a Press, and so express the Oil. While this is a doing, there rises such a black Smoak and noisome Smell, that whoever is employed about it cannot avoid receiving at their Mouths and Nostrils these rank Exhalations. This proves a fertile Source of Evils to all the Workmen, especially those who turn the Paste up and down in the Frying-pan with a Slice, for they are thereupon liable to Coughs, Shortness of Breath, Head-achs, *Megrims*, and *Cachexies*. Add to all this, that such Workmen do always carry about with them sordid Lamps, the Nastiness
of

* *De Ser. Urb.* c. 48. n. 3.

‖ *M. L. l. 4. T.*

of which dawbs and compacts the Pores of the Skin, and this throws them into acute Diseases, especially those of the Breast, for they work at this Work only in Winter. How offensive the Smoak of the Oil of Nuts is to the Head, is sufficiently experienced by those who write or read, or do any Manner of Work for some Hours by a Lamp of that Oil in a close Room which has no Vent; for they are thereupon seized with a violent Head-ach, Giddiness and Stupidity, and the whole Room is full of Smoak. I know some who have been as much annoyed by the Smoak of this Oil in a close Place, as if it had been the Smoak of Coals, and particularly a certain studious Person, who being in mean Circumstances, and having read late at Nights by such Lamps in his Cell, was seized with a Lethargy for several Days.

Nor is the Smell less offensive which we meet with in the Shops where Linseed-oil is prepared, which is much used in this Country for Lamps, especially when there's a Scarcity of Nut-oil: And the Persons who make the Linseed-oil suffer as much as the Makers of the former.

The same is the Case of Tanners and Leather-dressers, who steep the Hides of Animals in Pits with Lime and Galls; and not only so, but tread them with their Feet, wash and cleanse them, and smear them with Tallow. By Virtue of the perpetual Stink and foul Exhalations their Complexion becomes cadaverous, their Bodies are puffed up, they breathe with Difficulty, and almost all of them are splenetic. I have known a great many of this Trade hydropical; for since they spend almost all their Time in a moist Place, and an Air defiled with the foul Exhalations which rise from the half-rotten Hides, it is impossible but that the Store-houses both of the vital and the animal Spirits

its must be tainted, and the whole Oeconomy of the Body perverted. I have oftentimes observed, that neither spurring nor whipping would make some Horses pass by such Places, but, as soon as ever they smelt them, they turned about, and, without any regard to the Bridle, run directly Home, as if they had been mad. The Houses in which these Hides are dressed are placed either near the Walls of Cities, or without the Walls, as in this City of *Modena*, to prevent the infecting of the Air. And it was with this View that *Hippocrates*, describing the Case of *Philiscus*, who died of a malignant Fever on the sixth Day, inserts these Words, *Philiscus propè murum habitabat*; by which Words (says the learned *Mercurialis* in his Comment upon the Place) the divine *Preceptor* meant to set a Mark upon the Place where *Philiscus* lived, the Places adjacent to the Walls being always more sickly than the other Parts of the Cities, by reason that all the Filth of the City, the Carcasses of Brutes, and such other Nuisances are wont to be thrown into that Quarter.

In the antient State of *Rome* the Work-houses for sordid Trades, and particularly those of Tan-ners, were all in that Quarter which lay beyond the *Tyber*. Hence *Martial* †, reckoning up the noisome Smells which fell short of *Thais*, mentions that of Dog-skins steeped on the other Side of the *Tyber*.

*Non ab amore recens Hircus, non ora Leonis,
Non detracta Cani trans-tiberina Cutis.*

And *Juvenal* insinuating, that the meaner sort of People, and those imployed in sordid Trades, lived

lived on the other Side of the Tyber, has these Words,

— *nec te fastidia mercis*
Ullius subeant ablegandæ Tiberim ultra.

Further, the Air of that Quarter of the Town was infamous among the *Romans*, by reason of the violent Stench which flew from such sordid Trades and rank Commodities: And it was for this Reason that the *Jews**, who formerly lived in that Part of the Town, as being the meanest and most desolate, had a violent Stink about them; and not for any natural or national Quality, as the Vulgar would have it.

To the Class of Tanners we may add the Makers of Cat-gut-strings, or Strings for musical Instruments; for they are liable to the same Distempers, as being obliged to live in moist and stinking Places, and continually employed in handling, washing and opening out the Intestines of Animals. Accordingly we see that such Workmen are commonly wan in the Face and cachectic, and their Legs are swelled.

The Cheesemongers, or rather Cheese-makers, are likewise listed into the Number of sordid Artificers, who suffer through the Noisomeness of the Commodity they deal in. But here we mean chiefly those who make great round Cheeses of coarse Milk, such as perhaps those of *Luna* (now *Sarzana*) were in the Days of *Martial*.†

Casæus Hetruscæ signatus imagine Lunæ,
Præstabit pueris prandia mille viis.

Such

* *Philo de Leg. ad Calum.*

† *Lib. 13. Ep.*

Such are the Cheeses now made at *Parma*, *Placentia*, and *Lodi*; the Fat and reeking Exhalations of which give no small Trouble to the Persons who make them. In *Italy* they are seldom made in the Cities, but chiefly in the Villages and Country Places. But, in the City of *Modena*, the *Jews*, who esteem it a Sin to eat what is not prepared with their own Hands, fetch the Milk from the adjacent Villages, and make their own Cheese in their own Houses; and indeed those Places where they are made have a very ugly Smell, and draw all the Flies about them.

Lotichius, in his Book *de Casei Nequitia*, tells us, there is a Lane or narrow Street at *Francfort*, where Cheese is commonly made, and which casts forth such a nauseous Smell, that he takes it for the Cause of the Plague which afflicted that City so heavily.

But of all the noisome Places which are, none exceed the Tallow-chandlers Work-houses; for they affect not only the Work-men that make the Candles, but also the Neighbourhood; for which Reason this Manufacture is usually made towards the Skirts of Cities, as *Zacchia* * well observes. For when once the Kettles, which contain Goats, Hogs and Ox-tallow, begin to boil, they throw out a nauseous foul Exhalation which infects all the adjacent Parts; the greatest Sufferers are those who stand by the boiling Kettles, and take in these fat Particles at their Mouths and Nostrils, which cause great Obstructions in the fistular Texture of the Lungs, and so give rise to Difficulty of Respiration, Head-achs, and, above all, a Squeamishness, and an Inclination to vomit. For nothing produces a Nausea, or inverts the Fibres of the Stomach

* Q. M. l. 5. Tit. Q. 7.

much more forcibly than Fat, even when only looked upon, without receiving it inwardly. Accordingly we see most Men have an Antipathy against fat and large-breasted Women; and *Martial*, banishing all such Women from his Fellowship, calls himself *Carnarius*, and not *Pinguarius*, i. e. a Lover of Flesh, but not of Fat. All the World knows how effectually fat and oily Substances, notwithstanding the occult Acid they contain, obtund the Acid in the Stomach, which is the Source of the Appetite; and *Galen* * had Reason to recommend fat and *oleaginous* Food as a Remedy for canine Hunger, that Sort of Food being qualified to sheath up the *preternatural Acid*, which vellicates the Membranes of the Stomach. *Avicenna* † in like manner advises Travellers to feed upon fat Victuals, and particularly Cows-fat; and gives an Instance of one who, upon drinking a Pint of the Oil of Violets with Tallow, was able to bear fasting for ten Days, without any Inconvenience. It is no wonder then, that Tallow-chandlers have an almost perpetual In-appetency and loathing of Food.

I have often observed, that the Women, living near these Work-houses, complain of hysteric Passions, occasioned by the noisome Smell, which some may wonder at, upon the Consideration that sharp-smelling Things, applied to the Nostrils, are recommended by *Hippocrates* ‡ as a Remedy for *hysteric Fits*. But as on the one hand sweet-scented Things do not always excite hysteric Fits, in regard that Cinnamon, Nutmegs and such like odoriferous Things are Remedies against them, which *Horatius Augenius* || cries up as infallible, and which

* Com. 21. Se. 2. † Lib. 1. Fen. 3. Do. 5.
c. 2. ‡ 2. *Demor. mul.* n. 78. || Lib. 12
Ep. 8.

which *Etmuller* does not condemn, and as *Hippocrates* recommends the sweetest scented Wine, in his Book *de Nat. Mul.* So on the other hand Things of an unfavoury Smell are not always proper to check their Fits, as *Forestus* * has well observed; and it is an antient Observation, that the Snuff of a Lamp raises *hysteric* Commotions. And therefore I do not wonder that the animal Spirits are put into disorderly Motions by the putrid Smell of Tallow; and that thereby the Uterus suffers Convulsions along with the Stomach, which is forced upwards by the Nauseousness of the Smell. Nay I have oftentimes seen Women of a tender, nice Constitution, fall into fainting Fits and hysteric Commotions upon using the Light of a Tallow-candle.

To be further satisfied of the pernicious Smell of Tallow-candles do but consult *Solenander*†, who informs you, that his Brother *John* contracted a violent Disorder in his Lungs and his Brain by studying hard by the Light of Tallow-candles. He adds, that Ox-tallow gives a more noisome Smell than that of Sheep: But in our Country we find that the Tallow-candles never smell so rank, as when some Hogs-tallow is one of the Ingredients. The *Acta Hassniensia* ‡ relate the Case of a Woman, who, by working hard in making Candles for the Market, was seized with a violent Pain in the Head, with a Giddiness, a Redness in the Eyes, and a Difficulty of Respiration. This Woman *Olavus Borichius* cured by exhibiting first a Vomit, and then pectoral Waters with *Oxymel* of *Squills*, by which the Disease disappeared; but not long after, upon discontinuing the Use of the Remedies, he was seized with an *Orthopnœa*, and cursing her Trade,

* L. 28. Ob. 30.
Vol. 5. Ob. 86.

† Se. 5. Conf. 6. p. 461.

Trade, exhorted all of the same Calling, who inclined to preserve their Breast, to do their Business in the open Air.

I would advise likewise the Men of Learning to abstain, as much as they can, from Reading with a Tallow-light; and, if they cannot afford the Charge of Wax-candles, I would have them use Lamps with Oil of Olives, for these were consecrated to *Pallas*, and were made use of by the antient Pursuers of Wisdom, whose Works were said to be elaborate when they smelled of the Lamp. The same is the Opinion of *Plempius*,* who says, the Smoak or Snuff of a Tallow-candle is apt to cause Abortion, as well as the Snuff of a Lamp, according to *Pliny*. †

When we meet therefore with Patients who follow the Tallow-chandlers Trade, we ought to follow *Borichius*'s Method in exhibiting first *Emetics*, especially of the *Antimonial* Kind; then *Cathartics*, sharp Abstergents, and particularly such as are compounded with Vinegar, as *Oxymel* of Squills, and the like, for nothing conquers and defeats Fat more effectually than Vinegar.

We must endeavour, both by outward and inward Means, to sweep off and expel those unctuous Particles, with which the *Viscera* and the Skin are dawbed and stuffed up, and the Spirits intangled. This must still be our chief View whether they complain of the above-mentioned Disorders, or of any other, according to the Season of the Year. For it is always to be suspected, that the Humours and Spirits have received some Taint from the foul Particles which they suck in along with the Air: And for this Reason we must be cautious of Bleeding; for, after a plentiful Emission of Blood, their

Strength

* *De Tog. Val. c. 35, & 59.*

† *L. 7. H. N. c. 7.*

Strength and Spirits quickly fail, as being generated of foul and fordid Blood.

C H A P. XVII.

*Of the Diseases of TOBACCONISTS,
or those who make SNUFF.*

FROM these nasty and stinking Work-houses we move next to the Places in which Tobacco is manufactured. Snuff then the Invention of the present Age, is, by a vitious Custom, become so common in *Italy*, that Men, Women, and Children use it, and it is now reckoned into the daily Provisions of a Family. The Tobacconists themselves, who prepare it, are sufficient Proofs of the Injury it does to the Head and Stomach. Among other Commodities imported from *Leghorn* to *Modena*, there are certain Cakes or Rolls made of Tobacco-leaves twisted round, which the Tobacconists open and untwist, and put into a Mill to be ground. This Mill is turned round by Horses blind-fold, and in the mean Time the Workmen stand by and feed the Mill with Tobacco-leaves every now and then, and, before they are well inured to that Exercise, use to be seized with a violent Head-ach, Megrims, Squeamishness, and a continual Sneezing. For in the Grinding there flies off such an Exhalation of small Particles, especially in Summer, that all the Neighbourhood make grievous Complaints of the noisome Smell. Nay, the very Horses which turn the Mill are so affected with the sharp and offensive Exhalation, that they frequent-

ly shake their Heads, and cough, and blow their Nostrils. I knew a *Jewish* Girl, who, after working a-while, in opening these Rolls of Tobacco, was seized with a violent Inclination to vomit, and frequent Stools ; and she told me herself, that the hemorrhoidal Vessels voided a great Quantity of Blood, while she sat upon the Rolls.

It would be superfluous to say any thing here of the Use and Abuse of Tobacco, *Magnenus* having writ a peculiar Treatise upon that Head, and the learned *Etmuller* having, in a Piece lately printed at *Francfort*, given us an exact History of Tobacco, and the Medicines prepared from it. It is acknowledged by all, that many uncommon Disorders ensue upon the excessive Use of it ; and there are several Observations of that Nature to be met with in Authors. *Helmont* *, who abhors the Smoaking of it, says, he found the Stomach tinged yellow by its Smoak, and ascribes an occult Poison to it. *Simon Pauli* and *Richard Morton* † affirm, that by smoaking Tobacco the Lungs gradually become dry and withered. *Bonetus* ‡ demonstrates, from the Dissection of many Bodies, what terrible and abominable Disorders accrue both to the Lungs and the Brain, not only from the Smoak of Tobacco, but from the Use of Snuff. That Tobacco, like all other *Sternutatories*, is possessed of a great deal of Acrimony, is plain from its vellicating the Nostrils, as well as from the Taste it has when chewed, and the virulent Smell which taints the Breath of those who use it.

Now these Smells and flying Powders, which are the sharper, for being the thinner and smaller, being

* In Cust. errant. n. 46. ac in tra. de mor. occas.

† Quadr. Bot.

‡ De Phthis. c. 6. Sepulch. t.

being received in such a liberal Quantity at the Mouth and Nostrils of the Tobacco-workers, they stimulate and dry the tender Coat of the Lungs and *Aspera Arteria*, and with their foul Steams not only cloud the animal Spirits in the Brain, but produce a narcotic Effect upon them ; and at the same time corrupt the Digestion of the Stomach by enervating the Acid it contains.

I have no Intention to fasten an infamous Character upon so noted a Plant, dignified with the Title of Queen, and so acceptable to all the *Europeans*, especially in those Countries where the Consumption of Tobacco makes a considerable Branch of the public Revenue. The most celebrated Writers have spoke very largely of the Virtues of Tobacco ; and it is justly intitled to a Place among the physical Plants. It is only the excessive and intemperate Use of it which is blame-worthy ; and it is that which brought it to a Diversity of Fortune ; and to bear an ill Name as well as a good one. It is sufficiently made out by Experience, that Tobacco-leaves contain a great deal of volatile Salt, by Means of which they exert an absterfivè and vulnerary Virtue, in checking the luxuriant Acid ; and with regard to this Virtue *Epiphanius Ferdinandus* || cries up the Decoction of it for a mighty Secret in an Empyema. All the World knows, that Tobacco-leaves chewed in the Mouth draw forth a great deal of Phlegm : But there is a great Mistake committed in this Custom ; for the Chewing of it, and the throwing out such Plenty of Lymph, is not equally healthful for all. In fat Bodies, for Instance, and such as have gross Juices, Tobacco is of good Use, but in those of a bilious, hot Temperament it is offensive, as *Piso**

G 2

has

|| Hist. 22.
Med. ut. Ind.

* Lib. 4. c. 45. de Re. Nat. &

has well observed. I have known a great many brought to a Consumption by chewing Tobacco, who flattered themselves that their Health was preserved by the continual Flux that issued from their Mouths, and could hardly be persuaded, that they did themselves an Injury in thus robbing the salival Glands, and indeed the whole Body, of their nutritious Juice. So bewitching is that incurable Custom of Chewing and Smoaking Tobacco, that as it will ever be condemned, it will ever be retained.

Several Authors affirm, that the Chewing or Smoaking Tobacco does so cloy the Appetite, that it will enable Men to travel long Journeys without being hungry. *Piso* † says, That in travelling through Desarts he found that Benefit by chewing Tobacco, that he was neither hungry nor tired. *Helmont* ‡ makes the same Assertion, and says, It is owing not to any Virtue that the Tobacco has of satisfying the Appetite, but to this, that it sinks the Sense of the Want, and clogs the Exercise of the Functions. *Etmuller* is much of the same Mind; for he says, That Tobacco, like all other Narcotics, stupifies the Spirits, and, by its volatile oily Salt, blunts the saline Ferment of the Stomach; so that the Stimulus of Hunger is not felt. Thus I have often observed the Smokers and Chewers of Tobacco to labour under an almost continual Inappetency, not unlike the great Drinkers. For as Wine and its Spirit enervate and break the acid Ferment of the Ventricle, so the frequent Chewing and Smoaking of Tobacco does so blunt the *Saliva*, and pall the Stomach, that the Sense of *Suction* is not at all perceived. *Plempius** joins in the same Sentiments, affirming, that

† In *H. N. & Med. utriusque Ind.* l. 4. c. 43.

‡ In

12. *St. de Mort. Occas.*

* *De Tog Nat. Tuen.* c. 4.

that Tobacco does not nourish in the least, but quells the hungry Stomach, by calling a great Plenty of pituitous Humours to the Mouth, and swallowing them down.

In the mean time I cannot but wonder how the Nose, in Imitation of the Art of Cookery, came to be so ingenious as to find so many Arts and Ways for serving up and variously preparing Tobacco, that every one has to gratify his Nose some coarse, some small, some scented, some unscented, and not only the Nose, but even the Palate is variously gratified by the Smoak, which they throw out at Nose and Mouth : In so much that I never see these Users of Tobacco greedily cramming the Powder into their Nostrils, or sucking the Smoak, but I think of *Orlando*, described by *Areostus*, as if, after losing his Brains, he were sucking them in again at his Nostrils; or of *Cacus* struggling with *Hercules* in the Cave of the *Aventine* Hill, and belching out Smoak from his Chops.

*Faucibus ingentem fumum, mirabile dictu,
Evomat, involvatque domum Caligine cæca.*

But the main Question is, What Relief the Art of Physic affords to Tobacconists? Why, since the occasional Cause cannot be removed, and since the Prospect of Profit renders the Smell of Tobacco less noisome to them, I would advise them, in grinding, sifting or handling this Commodity, to endeavour to keep off the flying Atoms, by covering their Mouths and Nostrils, taking the fresh Air, frequently washing their Face with cold Water, rinsing their Throat with Vinegar and Water, and even drinking of it; for nothing is better qualified to carry off and blunt those Particles which adhere to the Throat and Stomach, than such Mixtures as have Vinegar for an Ingredient. Emulsions of Melon-seeds, Barley-ptisanes,

Cow's Whey, and Rice boiled in Milk, will all be of Use to defend the Throat and Stomach. Considering that they use to work in dark and moist Places, especially while the Leaves are grinding in the Mill, and that they usually complain of the Head-ach and a Squeamishness, I usually prescribed Vomits, that being the shortest Way to fetch up the small Powder which had got into the Stomach, and of its own Nature incited to vomiting.

Considering the Tradesmen receive no small Detriment from Smells, whether sweet or harsh, I had once a mind to make a Digression here of the Nature of *Odours*; but the Extent of that Task scared me from undertaking it; for I was afraid that, if once I dipped into it, the Pleasantness of the Subject would carry me too far out of my Way. While I dwelt upon this Thought, and observed that a great many Things have been said of *Smells*, both by the antient and modern Philosophers and Physicians, both that a particular and exact History of them is yet wanting, I thought upon a Method in which both the natural and physical History of *Odours* might be compiled, by examining their Nature according to the philosophical Maxims of both the Moderns and the Antients; and enquiring into their Differences, Divisions into Classes, Properties, Idiosyncrasies, Causes, native Soil, Composition, Mixtures, then the *Res Unguentaria*, or Perfumes of the Antients; and then proceeding to the Medicaments taken from *Odours*, in order to see whence the medicinal Use of Spirits, so much in vogue among the Moderns, took its Rise; and lastly, going through the *Odours* mentioned in the Bible, those used by the *Jews* in their Sacrifices, and those which the *Greeks*, *Romans*, *Egyptians*, and *Indians*, made use of in their Perfumes and Expiations, in order

to appease or invoke the Gods. This I foresaw would be a large Field of History, comprehending in one Performance whatever lies scattered in Authors, or is still to be discovered by Experiments. In antient Times *Petrus Servius*, a Roman Physician, wrote a philological Treatise of Odours, and therein promised a physical Treatise upon the same Subject, but, so far as we know, he did not make his Word good : As for my Part, I will not venture to pawn my Word for a Work of that Importance, which requires more Time and Pains than I can afford : For a great many Things which at a Distance, and at first View, seem plain and easy, are afterwards found to be difficult, and intricate : Which gave the *Poet* occasion to say,

*Tollimus ingentes animos, & maxima parvo
Tempore molimur.* —————

C H A P. XVIII.

Of the Diseases of the BEARERS of Corps.

THE Business of Bearers and Undertakers for Funerals was more laborious in antient Times than it is now ; for they took a great deal of Pains upon the Corps in washing, anointing, burning, and gathering the Ashes into Urns ; besides which, they imployed Embalmers, Burners, and others of the meaner Sort of People : Though now a-days the Corps are only carried by the Bearers to the Church or Church-yard, and so interred. But considering that in Cities and Towns, especially in *Italy*, every Family has its own Tomb in the great Churches, (whereas the common People are interred promiscuously at large in

wide Graves in their respective Parishes) the Bearers, imployed in Towns, being by that means obliged to go down to foul Vaults full of half-rotten Corps, are thereupon liable to many pernicious Diseases; especially malignant Fevers, sudden Death, Cachexies, Dropsies, suffocating Catarrhs, and other dismal Distempers. Accordingly, we see they have always a wan, cadaverous Countenance, as if they were already fit for the Grave: And, indeed, there cannot be a more effectual Means for raising pestilential Distempers than thus going down into Sepulchres, and breathing for some Time in that noxious Air, which pollutes the ethereal Nature of the animal Spirits, and renders them unfit to execute their Office, that is, to support the whole vital Machine. *Hippocrates* * justly observed, That *Air is at once the Author of Life, and of Diseases*: Doubtless then, the Air of Sepulchres must needs be very pernicious to the Bearers, and corrupt the whole Mass of Blood. In the Days of Antiquity the public Slaves, who were half-shaved, and called *Inscripti*, were doomed to this mean Office, as well as to the digging of Metals, and the cleansing of Jakes. Whence *Martial* says,

*Quatuor Inscripti portabant vile cadaver,
Accipit infelix qualia mille Rogus.*

But, in the Age we now live in, sordid Lucre and necessitous Circumstances constrain Free-men to perform the Office, though they have but very sorry Luck; for I never knew a Bearer an old Man in my Life-time. All the World knows how much the Corruption of all sorts of Carcasses tends

tends to defile the Air ; for frequent Experience has taught us, that fatal Plagues ensue upon great Battles, by reason of the Dead lying unburied, and upon the indiscreet opening antient Sepulchres. It is no wonder, therefore, that the Bearers and others concerned in Funerals do, by handling dead Bodies, opening the Doors of Sepulchres, and going down into them, fetch up pestilential Diseases. There is a known Story of one *Pisto*, a Bearer, who buried a young Man finely dressed up in Cloaths, with new Shoes on the Feet of the Corps ; and a few Days after, finding the Church-doors open, opened the Tomb, went down into the Grave, and took the Shoes off the Corps ; but had no sooner done, than he fell down and expired upon the Corps, and so suffered a just Punishment for violating the Sepulchre.

This filthy Smell is frequently perceived in Churches, especially in Summer, by reason of the great number of the Tombs, and their being frequently opened, which cannot be but very noxious to the People, notwithstanding the Churches are perfumed with Frankincense, Myrrh, and other odoriferous Things. Upon this Consideration *Lilius Gyraldus*, in his learned Treatise, *de Vario sepeliendi Ritu*, justly condemns that modern Custom of burying in Churches : For in antient Times, and in the earliest Days of Christianity, the Corps of Martyrs only were interred in the Churches, the rest of the Faithful being buried in Church-yards or near the Churches. The People in the Country bury their Dead more decently than the Inhabitants of Towns ; for they put them into a Wooden Coffin, and, having digged a deep Pit in some Field near their Parish-church, put them under Ground ; the whole Ceremony being performed by Relations and Neighbours. It was a laudable Custom a-

mong the *Romans* to carry their Dead out of Town, as the *Athenians* did to the Κεράμιον, where they put them upon a Funeral-pile, and preserved the Ashes in Stone or Brass Urns. The Roads, called *Via Latina* and *Flaminia*, and especially the military Ways or Causeys, were famous among the *Romans* for a Frequency of Monuments. Hence *Juvenal*. †

——— *Experiar, quod concedatur in illos,
Quorum Flaminia tegitur Cinis, atq; Latina.*

Now this they did, according to *Gyraldus*, for three Reasons: First, That these Monuments might invite the Passengers to the Pursuit of Virtue; and hence it is that the antient Epitaphs and Inscriptions were all addressed to the *Viatores*, or Passengers: Secondly, That, if the City should be besieged, the Citizens might be invited to fight more chearfully for the Ashes of their Relations: Thirdly, and chiefly, That the Town might remain untainted with the foul *Effluvia* which flow from putrefied Corps. Only, by a peculiar Privilege, the vestal Virgins and the Emperors were allowed to be interred within the Town. *Tully* * informs us, That, by the Law of the Twelve Tables, the Funeral-pile, though out of Town, was to be sixty Foot distant from other Men's Houses; and that, not for fear of Fire, as he tells you, but to avoid the filthy Smell which attends the burning of Corps. So careful were the Antients in providing for the Safety of the Community, by keeping the Air clean, that they removed out of Town not only all unclean Things, but even the Ashes of their own Relations. Nay,
Hesiodus,

† Sat. 1.

* 2 De Leg.

Hesiodus was against the very dunging of the Grounds, because the Wholsomeness of the Air ought to be preferred to the Fertility of the Soil. And by an Edict of the *Ædiles*, or Church-wardens, the bringing of any thing made of Hides or Skins into the Churches was prohibited ; for it was unlawful to put any thing in the Churches that came from a dead Thing.

To conclude, it is but reasonable, since the Bearers and Funeral-officers hide under Ground the Corps of the Deceased, together with the Errors of Physicians, that the Art of Physic should requite them in a beneficial Way for thus supporting the Dignity of the Profession. For this End they must be cautioned, to guard themselves in doing their Office as much as they can ; that is, to observe the Cautions usual in the Time of a Plague, to wash their Mouths and Throats with sharp Vinegar, to carry in their Pockets Handkerchiefs soaked in Vinegar, to refresh the Spirits by odoriferous Things, and to let the Tombs be open some small Time before they go into them, that so the imprisoned Steams may gradually fly out. When their Business is over, let them return Home and shift themselves, and endeavour to go as clean in their Cloaths as their Circumstances will allow them. If they are seized with any Distemper, they must be attended with a great deal of Circumspection. Whenever I have to do with this sort of Men, I let blood but very sparingly, for their Blood is of the same colour with their Faces ; Purgatives being more proper for them who labour under a foul Cacochyiny, and are likelier to die than to live.

C H A P. XIX.

Of the Diseases of MIDWIVES.

THE Office of Midwives is quite different from that of Bearers, since the former take Care of Man's Entry into the World, and the latter assist at his Departure from it; but both Offices, respecting the Origin and the End of Life, are sufficient Evidence of the State of Humanity. Though Midwives do not incur such Danger by assisting Women in Child-birth, as the Bearers do by the Interring of Corps; yet they do not always escape free when they receive the Birth, together with the Flux which comes from the Uterus. I need not mention the Corruption of the *Lochia*, the Diminution or Suppression of whose Flux, for a few Hours, is enough to kill the Woman who lies in. Neither am I unacquainted with the many Questions which have been, and still are put, relating to the corrupt Nature of the *Menstrua*. Pliny * says, *The menstrual Flux has such noxious Qualities, that it sours Stum, blasts Corn, kills what comes a-near it, and burns the Fruits of the Earth.* But Fallopius † endeavours to clear it of so heavy a Charge, asserting, That the menstrual Blood is good, and in its own Nature laudable, if the Woman be sound; that it is the same with that which nourishes both the Woman and the *Fætus*, and that it is only the Quantity of the Blood which moves the Womb to Excretion.

This

* Lib. 7. H. N. c. 15.

† De Med. Purg. c. 1.

This Opinion is favoured by *Rodericus a Castro*†, and by *Ballonius*||, who says, *The menstrual Evacuation is peccant in Quantity, but not in Quality*, and quotes a noted Place of *Hippocrates's* Writings†, where he calls the menstrual Flux not *fluorem*, but *florem* [τα καλαμήνια ἀνθεῖν.] Nay, *Ballonius* * says elsewhere, *That the menstrual Flux is not peccant either in Quantity or Quality, but is brought about by the secret and wonderfñl Counsel of Nature and Divine Providence, for a future Procreation.*

I have often observed with Admiration, that some Women, when worn out, and brought almost to a Consumption, by Diseases of long Duration, and particularly a noble Nun, when quite spent with a ten Years Sickneſs which confined her to her Bed, have ſtill had their Diſcharges every Month regularly, though indeed the Quantity did not exceed a few Drops. But, after all, I am ſtill of Opinion, that the menstrual Blood has ſome-what of Malignity in it: For the menstrual Flux is not only an Excretion, but a Secretion performed by Virtue of ſome Fermentation unknown to us, the ſaline and other Particles being precipitated to the Glandules of the Uterus, and ſo thrown out of the Body.

This Fermentation and inteſtine Perturbation is ſufficiently experienced by the Women, both when their menstrual Flux approaches, and when it is actually upon them; for which Reason ſome call it a menstrual Fever; that is, a medicinal Fever, which is followed by a Briskneſs of the Spirits, and a better State of Health. *O ribaſius* *†, writing upon

† *De Uni. Mul. me.* || *Lib. 2. c. 10.* † *Lib. 2.*
Conf. Hiſt. * *2. De Momul.* *† *Vid. Bra.*
ſau. l. 5. Aph. 36.

upon this Subject, says prettily, That *Women's Joy gives Matter of Grief, and their Grief turns to Joy*. If we may credit the Histories committed to Writing, the menstrual Blood is given for a Love-potion, and enjoys the Virtue of making People mad; by this Means they say *Caius Caligula* was bewitched by his Wife *Cæsonia*. Among the chirurgical Cautions, relating to the Cure of Wounds, *Fragosius*, *Lanfrancus*, and other celebrated Surgeons assert, That the Lint should not be made of Women's Linnen or Shifts, notwithstanding they are frequently washed; and that by reason of the Virulency of the menstrual Blood: Nay, they require that the wounded Persons should not be seen nor looked upon by Women under their menstrual Flux, or by Men heated with venereal Embraces, by reason of the goatish Steams which come from them. So that what is related by *Pliny* †, and by *Joaichimus Camerarius* || in *Gasparus a Rejes*, is not so fabulous as some think. That the Bees pursue Men who are just come from a venereal Encounter, as being mightily delighted with the Sweetness of Odours, and very observant of Chastity.

But let the menstrual Flux be what it will, the Evacuation from the Uterus, which ushers in and succeeds the Birth, is undoubtedly tainted with Malignity and Virulency, as appears from the sudden Suppression or Diminution of the Flux of the *Lochia*, which gives rise to malignant Fevers, which quickly carry off the Patient; whereas a simple Suppression of the menstrual Discharge, is not attended with such fatal Consequences; for if it renders Women sickly and cachectic, it does not carry them off so speedily. In short, the *Fætus*
sucks

† Lib. 7. H. N. c. 7.

|| Cap. El, Q. 54.

sucks out of the Blood or Chyle the most spirituous and pure Part; so that the pregnant Woman is robbed of her most spirituous Juice, by which Means it comes to pass that a peccant Redundance of Humours prevails, not only in the Mass of Blood, but in the very Substance of the Uterus, which, while the Woman is with-child, becomes very thick, as *Graef* and *Sylvius* have observed; for the more the Womb is distended, the more its Substance is incrassated. This Redundance of Humours, which lay quiet and easy before Child-birth, is upon this Accident put into Motion, and kills the Woman, unless it be carried off speedily, and by a continual Efflux.

Now the Midwives, standing ready to receive the Birth with expanded Hands, and continuing in that Posture for several Hours, receive no small Damage upon their very Hands from the dropping of the *Lochia*, insomuch that sometimes their Hands are inflamed and ulcerated by the sharp corrosive Matter. *Fernelius* *, admiring the Force of contagious Diseases, relates the Case of a Midwife, who, by laying a Woman, contracted such a Disorder in her Hand, that it corrupted and fell off; adding, that the Woman she had laid was poxed. So that as a Nurse, who suckles a foul Child, receives the first Infection in the Breasts; and a Child, that sucks a pocky Nurse, discovers the first Seeds of the Pox in the Mouth and Palate; so this Midwife felt the dire Effects of the Contagion in the Hand upon which the pocky *Lochia* dropped. This your expert and prudent Midwives are sufficiently aware of; for, when they are obliged to lay a pocky Woman, they wrap their Hands up in Linnen Cloaths, and wash them often in Water
and

* 2. *De Abd. Morb. Caus.* c. 14.

and Vinegar. Add to all this, That the Midwives receive at Mouth and Nostrils the noxious Steams arising from the Flux of the Womb, and, which is yet worse, they cannot arm themselves against them with sweet-scented Odours, these being apt to throw the Women in labour into hysteric Fits.

Perhaps the Midwives are not so much exposed to Danger in *England, France, Germany*, and other Countries, where the big-bellied Women bring forth their Children in Bed, and not upon perforated Stools as they do in *Italy*; before which the Midwives are obliged to sit bending forward with expanded Arms waiting the Egress of the *Fœtus*, and are so fatigued with Toil and patient Attendance (especially when they wait upon Women of Quality, or such as have hard Labour) that immediately upon the Delivery they run Home quite fatigued, and curse their Profession.

I have narrowly inquired, and am still at a loss to determine, whether the Women among the Ancients used to bring forth upon Stools or in Bed. But this and many other curious Things had not been unknown, if the Flames had not destroyed the Library of *Th. Bartholine*, where that celebrated Author had an elaborate and finished Treatise *de Puerperio Veterum*. However, the Custom of bringing forth in Bed begins now to obtain in this Country, which I take to be a laudable Practice; because by this Means many Inconveniencies are avoided: For, unless they have a very easy Delivery, it falls out very often that the Women are carried, after ineffectual Throws, from the Stool to Bed, and from Bed to the Stool again, to the great Detriment of their Strength; or, after they are delivered, fall into violent Hæmorrhages of the Uterus, and expire upon the Stool. Besides, all Brutes, having no other Midwife but Nature, lie
upon

upon the Ground while they bring forth ; and so teach us, that it is easier to bring forth in a lying Posture, than when the Body is raised or sitting. Some may reply, that the Brutes are forced to lie down for fear their Young-ones should fall down and be dashed to death, or because they look flat down to the Earth, and their Womb has a different Position from that of the human, so as to render the Exclusion of the *Fætus* easier. But, in Opposition to this, we see that the little small Animals, such as little Bitches, Cats, and Mice, who have no occasion to fear the Dropping of their *Fætus* from on high, do all bring forth in a lying Posture. Neither do I believe, that the upright Position of the Womb contributes much to the Facility of Delivery ; for we may readily apprehend, that the *Fætus*, once stripped of its Coverings, and pressing for an Exit, is speedily hurried to the Vagina, and makes its Exit often in a preternatural Posture, as with the Hands stretched out, or any other Way.

In fine, the Midwives, who would perform their Office without the Danger of Infection, ought every now and then, when they have any Respite, to wash their Hands and Arms in Water and Wine : After their Business is over they ought to wash their Faces and Hands in Water and Vinegar, and shift themselves ; and, in a word, they ought to take a nice Care all along to have clean Things about them. A certain old Midwife told me, that, when she was called to attend a pocky or cachectic Woman, she used to stay to the very last Throws before she set her upon the Stool, by which Means she kept her Hands from being so long exposed to the dropping of the contagious *Lochia*.

C H A P. XX.

Of the Diseases of NURSES.

AFTER the Midwives have done their Office, they are succeeded by the Nurses, who are likewise subject to various Diseases in the Course of Suckling. By Nurses here I understand not only the hired Nurses, who suckle other Folks Children, but likewise those who suckle their own. Now the Diseases to which they are commonly subject are Consumptions, hysteric Passions, pustulous and scabby Eruptions, Head-achs, Vertigos, Difficulty of Breathing, and Weakness of the Sight; besides many other Disorders, especially in their Breasts, occasioned by the Redundancy or Curdling of the Milk; for thereupon the Breasts are inflamed and imposthumated, and the Nipples chopped. It is easy to conceive how long Suckling causes a Consumption: For when the Child becomes big and sucks a large Quantity of Milk (whether it be generated of the Blood according to the Ancients, or rather of the Chyle according to the Moderns) the Nurses Bodies are robbed of their nutritious Juice, and so exhausted, that they grow thin and slender; especially if they suckle Twins, or, for the Sake of Profit, suckle another Child besides their own. That itchy Eruptions will affect the Nurses may readily be inferred from their handling, dandling and carrying in their Arms their Children, who are generally troubled with Tettars and the *Crusta Lactea*; for the Children, who have not the Benefit of this Evacuation, are usually seized with violent Distempers, according

ing to *Hippocrates** : Besides the milder Part of the Blood and Chyle being conveyed to the Breasts, and there converted into Milk, the serous and salt Humours are only left for the Nourishment of the Body, and these break out in Blotches and Scabs. *Hippocrates* † asserts, That a Nurse, who was troubled with cuticular Eruptions while she suckled, was clear of them in the Summer after weaning the Child. This Passage is admirably well interpreted by *Martianus*, in Opposition to *Valesius's* Comment, who fancied, that the Nurse had been without her Menses while she suckled, and that the Pustules took rise from the subsequent Caco-chymy of her Body. These Eruptions, says *Martianus*, are rather to be imputed to the Errors committed by Nurses in the Way of Eating and Drinking, for they think to increase their Stock of Milk by much Feeding: And besides, all Sucklers use to have a great Appetite. Add to these the Watchings, and Interruption of Sleep, which Nurses frequently undergo, for by that Means Crudities breed in their Body, and, if joined by any salt Humour, become a fit Matter for Pustules.

Hippocrates ‡ gives us the History of another Nurse to this Effect: *Thersander's Wife, who suckled her own Child, being troubled with a Leucophlegmatia, or a sort of Dropsy, though not to a great degree, was seized with an acute Fever. Her Tongue was parched and grew very rough, with Pustules upon it, and she voided at the Mouth Worms. On the twentieth Day the Crisis was not perfect.*

Valesius imputes the acute Fevers of Nurses to the Suppression of the menstrual Evacuation; but *Martianus's* Account of the Matter seems to be much juster. For we must not take Nurses to be

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* *De Morb. Sac. n. 7.*

† 2 in 2. *Epid.*

‡ 4. *Epid. t. 14. ex Vales.*

in a *preternatural* State, because their *Menfes* do not flow while they suckle, for then the menstrual Purgation would *naturally* accompany the Suckling: But the Blame is to be thrown upon the Errors in Diet, the restless Nights, and the Depredation of the nutritious Juice: For *Hippocrates*, in asserting, that this Woman was leucophlegmatic, and voided Worms at the Mouth, insinuates that the first Passages, and indeed the whole Body, were stuffed with gross Juices.

It is upon these Accounts that Nurses are subject to Weakness of the Eyes, Head-achs, a Giddiness in the Head, a Difficulty of Breathing, and the *Fluor Albus*, especially if they suckle for several Years. *Ballonius*, * the most experienced Physician of his Time, observes, that all the Women, who had been Nurses for a long Time, grew very lean, or were afterwards apt to be sickly, or subject to the *Fluor Albus*, or laboured under a Weakness: For in such Women the Humours are easily colliquated and the Parts which receive them give a ready Access; as it happened to a certain old Woman, says *Ballonius*, who had so much Milk, that she suckled three Children for a long Time, the Consequence of which was the emptying of the Vessels, and an habitual Infirmary. The same Author † relates the Case of a Nurse, from which we may gather a Caution of no small Importance relating to the right Cure of Nurses. *A certain Woman*, says he, *had such a Defluxion upon the Spine, that she was almost quite stiff. She was a Nurse, and perhaps the Fatigue of Suckling had occasioned her Illness. She recovered upon the Application of Cotton and Oil without Bleeding, for the Heat of the Bed and the Inunction promoted a Concoction.* Perhaps another Physician

Physician would have been for bleeding her. Those Physicians, who impute the Diseases of Nurses to the Suppression of the Menfes, are often for Bleeding ; but they commit a great Error. Had that Woman been in the Hands of our modern Physicians, she had been bled three or four times ; for they look upon Bleeding as the chief Hinge of the Cure of the Disorders of Nurses, because while they suckle they have no menstrual Purgation. But they are mightily mistaken ; for it is not so much the Absence of that Evacuation which we are to mind, as the Cacochymy, and the Disorder of the Body contracted by long Suckling. Besides, in this Country, there are few Nurses who live in great Families, but feed high ; which is a further Argument for our being cautious of Phlebotomy, for fear of weakening the Body more, and so adding Strength to the Disease. So that the safer Way of the two is to insist upon Purgatives, rather than run the Risque of unseasonable Bleeding.

All the World knows what Disorders Nurses undergo in their Breasts, such as Redundancy of Milk, the profuse Running of it when it is thin, (which is followed by a Weakness and a consuming Decay) the Curdling of the Milk, Inflammations and Abscesses in the Breasts, and Chops in the Nipples : The Causes and Cure of all which I forbear to mention, this Subject being treated at large by practical Writers, and particularly by the learned *Etmuller*, who musters up a long Train of Remedies * for that end,

Sometimes Nurses complain of a painful Compression in their Back, especially such of them as have been lately brought to bed, and have a great deal

* *Valit. Infant.*

deal of Milk, either from the Softness and Laxity of the Breasts, or from the Weakness of the Child, which is not able to empty them. This Pain is felt chiefly in the Back, by reason of the excessive Turgency or Distention of the lacteal thoracic Vessels, which climb over the *Spinal Marrow*, and convey the chylous Matter to the axillary Vessels, or else to the Breasts, in order to the Generation of Milk, this Distention is to be remedied by a moderate Diet, and especially abstaining from strong Wine; and, if the Pain be violent, Bleeding will not be improper. This Pain, which is sometimes followed by a Fever, is chiefly observed among the lusty, hale Women.

Hysteric Disorders do also afflict Nurses, especially such of them as live in great Families, feed high, and are carefully withheld from their Husbands Embraces. For when the Nurse is high fed, the Womb swelling with Liquor assumes a Furiousness, and gives no small Taint to the milky Liquor in the Breasts. Almost all Authors lay down this for a Certainty, that Nurses ought to abstain from Coition, lest the Milk should be spoiled. The Woman who suckles, says *Galen*, † must abstain altogether from Venery, for Copulation brings down the Menses, and gives the Milk an unfavoury Taint. It would be tedious to quote the Authors who look upon this as a necessary Caution, though in reality it is neither countenanced by Reason, nor backed by Experience. I grant, indeed, that if a Nurse conceives, she gives but weak and vitious Nourishment; and that thereupon the Child must either be weaned or put out to another Nurse. *De Greaf** has a curious and remarkable Story of a Man, who had a little fat Bitch which suckled a Cat, notwithstanding that she had

† *In p. de Tu. Val. c. 9.*

* *De Vir. Organ.*

had never been with Pup, which he kept up from the Dog, when she grew proud; but by chance he lighted on a Dog by stealth, and from that Time forth the Cat would not suck her Milk. So that I dare not deny, but that repeated and immoderate Venery will taint the Milk. But at the same Time I do not know, but the Milk may be more vitiated by keeping up the Nurses from the Fellowship of their Husbands, which whets their Appetite and tosses their Mind in awkward longing Night and Day, and so throws them into violent hysteric Fits: And thus it is, that wise People, who watch their Children's Nurses more narrowly than their own Wives, are only re-venge'd upon the innocent Children.

Authors may write what they will, in compliance with *Galen's* Dictates, and confine the Nurses in a Prison, where the Society of Men is not allowed: But for my Part, I am of another Mind; and, in Justification of my Thoughts (as the Orator † said) *ad Populum provoco*, I appeal to the People: For I observe that among the common People, all the Mothers suckle their own Children, (unless some Accident prevents them) and lie every Night with their Husbands, whose Embraces they receive after the usual manner, without incurring the Inconveniencies with reference to their Milk, which Physicians are so much afraid of, when they condemn the Nurses of great Men's Children to a rigorous Chastity. In this City there are but few of the Nobility or Gentry who entertain their Nurses in their own Houses; for, upon high breeding, their Lasciviousness and Petulancy are unsufferable; and therefore the Children of Persons of Quality are commonly put out to Nurses who entertain them at Home with their own Family; nay the Country Nurses are preferred

red to those who live in Town, because their Milk is presumed to be heartier and stronger.

The only Author, I know of who rejects the vulgar Error of tying up the Nurses from their Husband's Embraces, is *Martianus*, * who, after shewing how the Milk is generated, speaks to this Purpose. *If these Things be true, those Authors must be mistaken who prohibit Nurses to keep company with Men, as if that would vitiate the Milk; for Copulation raises a certain Motion in the Womb, upon which depends the Breeding of the Milk, and adds Alacrity to the Woman, by virtue of which the little Veins are relaxed, as Hippocrates says; all which contribute very much to the Plenty and Goodness of the Milk. Besides, since Continence is so offensive to those who are accustomed to Venery, that it makes them subject to various Diseases, it can be no safe Course to deprive Nurses altogether of their Husbands Company. Besides, if we weigh the Case maturely, we shall find, that the Milk owes its first Origin to the Womb: For, while the Womb is moved and transported with venereal Pleasure, the whole Centexture of the Body is likewise moved, and the Blood-vessels become larger. And now, that I have mentioned the Dilatation of the Blood-vessels, it puts me in mind of a Custom observed by the Antients in solemnizing Matrimony. When the Bride went first to bed, the Nurse took the Measure of her Neck with a Thread, and next Morning she measured it again with the same Thread; and if the Thread proved too short in the Morning, she joyfully proclaimed, that the Bridegroom had made a Virgin a Woman. To this Custom *Martial* alludes when he says,*

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*Non illam Nutrix orienti luce revisens,
Hesterno collum poterit circumdare filo :*

That is to say, the Bride's Neck grew bigger, and her Veins swelled upon the Exercise of Venery.

I have oftentimes bent my Thoughts upon the mechanical Contrivance of Nature, by which Milk is bred in the Breasts as soon as the *Fætus* is brought forth, and even before, as if it were contrived by some intellectual Being, who makes provision before-hand to answer the Necessities of the Infant. But I cannot yet form to myself any satisfactory Idea of the Matter, neither do I receive any Satisfaction from those who have treated on this Point ; such as *Diemerbroeck*, *Gasparus*, *Bartholine*, and others quoted by *Diemerbroeck* *. For which Reason I shall venture to make a small Digression upon this Subject.

The Discovery of the Lacteals, begun in this fortunate Age by *Asellius*, and brought to Perfection by *Pecquetus*, though *Hippocrates* † seems to have hinted at it, is universally known ; there being no Retainer to Physic, who is unacquainted with the Motion of the Chyle through its proper Ducts, and its Ingress into the Blood-vessels, or with the Opinion of the Ancients and Moderns, relating to the constituent Matter of Milk, which they will needs derive from the Chyle, taking Milk to be a Part of the Chyle mixed with the Blood and strained out in the Breasts. This Opinion they back with Conjectures not destitute of Probability, which were first conceived by *Martianus* ‖, that excellent Commentator upon *Hippocrates*

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* L. 2. c. 2. *Anat. Diff. de Mamm.*

† *De Gland.*

nu. 3. ‖ *Com. Hip. de Nat. Pueri.*

crates. These Things, which in antient Times were proposed only as Doubts, concerning the Substance of Milk, are now plain and unquestioned Truths. But we are still at a loss to fix upon the mechanic Means by which the Chyle is forced so plentifully into the Glandules of the Breasts, both before and after Child-birth, notwithstanding the Child-bed Purgation; for it is evident, that the Chyle does not move naturally that Way, and we cannot be so senseless as to ascribe its Motion either to an imaginary attractive Force, or to the Direction of an intelligent Faculty.

Since the Comments of the Moderns cannot satisfy us upon this Head, let us now consult the Oracles of the Ancients, and try if they advance any Thing which bears a Resemblance to Truth: For, as *Plautus* † says, the old Fables are infinitely preferable to the new.

Though the great *Hippocrates* sometimes made use of the word *Nature*, in explaining the wonderful Things performed within our Bodies, yet he manifestly acknowledges that mechanical Necessity, which is so much in vogue among the modern Writers, who, discarding all Ferments, bring all to the Test of Mechanism, and an artful Structure. That *Hippocrates* had this mechanical Necessity in view is apparent from several Passages of his Writings. In one Place he says, * *Women have an easy Delivery, when, after the Breaking of the Coats or Coverings, the Fœtus tends and sways towards its Head; for when the greatest Sway tends towards the Feet, it presents itself obliquely; the Greek Word σπῆν|| being well interpreted Momentum and Inclination.* The mechanical Production of Milk he

† *Prolog. Casn.*

‡ *De Licet. nu. 5*

* *Epid. de Nat. Puer. n. 21, and 42.*

he explains after this Manner ; *The Womb, swelling with the Bulk of the Fœtus, bears upon the Woman's Belly ; and the Belly being full, when it is pressed or squeezed, the fattest Part of the Food flies out into the Caul and the Flesh.* This, says the venerable Author, is the Necessity or necessary Cause which gives rise to Milk, in which Words he points to the mechanical Solution of the *Phænomenon*.

When a Woman therefore is with-child, as soon as the *Fœtus* begins to be bulky it bears upon the Womb, the Intestines, the Ventricle, the Diaphragm, and all the upper Parts, and squeezes them into a narrower Compass, at the same time it drives the Chyle through the lacteal Vessels of the *Abdomen*, and the thoracic Ducts towards the Breasts ; the soft and loose Texture of which gives it a ready Admission either through the *Ductus Chyliferi*, or, if these are not yet open, through the *Anteriæ Mammariæ*, as *Lower* and *Dionis* will have it. This Motion of the Chyle to the Breasts needs no other impellent Force but the Compression made by the Bulk of the *Fœtus*, which may be backed by the Motion of the *Fœtus*, as *Hippocrates* says † : For the first Signs of Milk appear in the Breasts, as soon as the *Fœtus* begins to move in the Womb. Pursuant to this Notion the famous *Pecquetus*, the first Discoverer of the thoracic Chyle-vessels, was of Opinion, that the Motion of the *Diaphragm*, pushed the Chyle from the Lacteals of the *Abdomen* to those of the Breast ; and from thence to the Mass of Blood. *Herodotus* * has a very curious and remarkable Observation of the Means used by the *Scythians* to obtain greater Quantities of Mare's Milk, upon which they live. *They take, says he, hollow Bones like Pipes or Whistles, and fixing them*

in the Mare's Genitals, blow through them with their Mouths, while the Mare is a milking. This Contrivance they use upon the Apprehension that it swells the Mare's Veins, and makes the Udder fall down. Though the Womb of a Woman is not situate so near the Breasts as in the Brutes which have their Faces pointed to the Ground; yet, when it is distended by the *Fætus* grown to a considerable Bulk, it has Force enough to squeeze the adjacent Parts, and drive upwards the Juice contained in the Vessels; especially if we consider, that the Motion of the *Fætus* in the Womb joins Forces for that End with the above-mentioned Pressure.

Now, after Delivery, the Womb returns to its natural Magnitude, and so this Pressure and forwarding Motion ceases; for which Reason *Hippocrates* † adds, *That the Milk repairs to the Breasts, provided the Woman suckles; for the Sucking of the Breasts enlarges the Capacity of the Veins, and these being thus dilated draw the Fat from the Belly, and distribute it through the Breasts.* So that the Child's Sucking is sufficient to continue the Motion of the Chyle; but without that Suction the Springs will speedily dry up. This Pressure of the distended Womb discovered by *Hippocrates*, is countenanced by a Remark made upon the Animals, which bring forth several *Fætus's* at one Birth, and have a long Row of Dugs on each side, such as Swine, Dogs, and Cats, that the Dugs which lie nearest the *Cornua* of the Womb, where the greatest Pressure is, are fullest of Milk both before and after Littering; which I have seen myself oftener than once, and for that Reason the Puppies which happen to suck

† *De Nat. Putri*, n. 22.

suck the middling Teats are stronger and fatter than those which suck at the two Ends.

Thus we see *Hippocrates* endeavoured to explain the Motion of the Humour which becomes Milk, after a mechanical Way; and had his Successors followed his Example, Medicine had long before now been raised to a higher Degree of Perfection in many Points: But, instead of that, they pretended to solve all difficult Questions by having recourse to the Word *Nature*; the most insignificant Word which ever crept into physical Disputes, and the greatest Patron of Ignorance, *Diemerbroeck*, * dwells long upon the Question, What it is which drives the Chyle through its Ducts to the Heart, or forces it to the Breasts, in order to become Milk? Having rejected the Opinion of *Deusingius*, who took it to be a certain Quality which rarifies and ferments all Things in the Body, he endeavours to establish his own, but upon very slender Grounds; for he imputes all the Motion, we now speak of, to a strong Imagination in the pregnant Woman, while she thinks intently of the Generation of Milk for the Nourishment of the Child: Which Opinion is learnedly refuted by *Bartholine*†. Besides, this imaginary Whim will quickly fall, if we but consider that Ladies of Quality, who refuse to suckle their own Children, for fear of making their Breasts flaggy, have, nevertheless, Milk in their Breasts. And they are so far from thinking with Concern, or wishing for Milk in their Breasts, that all their Thoughts center in the avoiding of it: And yet, in spite of their Wishes, in spite of all the Remedies they use to the contrary, their Breasts are visited with Milk the third or fourth Day after Delivery. However,

* Lib. 2. Annot. c. 2. † Diff. de Mam. & Lact.

Bartholine himself has no firm or satisfactory Position upon this Head ; for all his Advances are proposed in a dubious Way. In the first Place, among the external Causes which dispose the Breasts to Lactification, he reckons the sudden Change which is observed in Virgins when the Terms begin to flow, the Privities are covered with Hair, the Voice changes, the Breasts begin to be round and plump ; then he brings in the Male-seed, which in Conception puts the Mass of Blood in a Ferment, and disposes the Chyle to a readier Secession in the Breasts. The internal Causes which make the Breasts turgid, three or four Days after Child-birth, he imputes to the Reflux of the chylous Blood, which used to repair in great Plenty to the Womb, for the Nourishment of the *Fœtus*. *Ortlob* * runs much upon the same Strain, alledging, that the Womb, being contracted upon the Egress of the *Fœtus*, the Matter allotted for its Nourishment is sucked up again by the Blood ; and so the Glands of the Breasts, being distended more than ordinary, undertake the Secretion of the Humour which was formerly performed in the Womb. These Conjectures are truly very ingenuous ; and indeed it is manifest, that the Milk owes its Origin to the Womb ; for, without Conception, Milk is never, or at least very seldom, seen in the Breasts. But still the Question recurs, How, upon the Disburdening of the Womb, comes the chylous Blood, which used to be carried through the hypogastric Arteries for the Nourishment of the *Fœtus*, and is now sucked up by the Veins, and mixed with the arterious Blood in the left Ventricle of the Heart, to direct its Course to the Breasts, and there acquire the Form of Milk, and that, not when the

Woman

Woman is lusty and full of Juice, but when she is brought low and exhausted with the previous Fatigue of having a Child in her Belly, and of a laborious Child-birth, and with the present Evacuation from the Womb, which is certainly very considerable? So that the Question is still to be put, What impellent Force, what mechanical Spring, pushes the Matter of the Milk into the Breasts? And of this, I believe, we are altogether ignorant.

Certainly we must believe, that the Divine Architect has formed the Womb and the Breasts of such a Structure, and by such an unknown though admirable Artifice, that, by a constant Law, the Disburdening of the Womb is followed by Milk in the Breasts; just as we see the Lungs of the new-born *Fœtus*, which for nine Months had not been used, do then begin to perform their Office, the external Air entering at the Mouth, and blowing them up by its elastic Force, that so at the same time the *Foramen Ovale* may be disused, and the Blood circulate in a new Channel. I cannot deny, but there is a wonderful Consent of Sympathy between the Breasts and the Womb; but the Ingenuity of Mankind, and all the Application of Anatomists, is not able to canvass it. This Consent was known to *Hippocrates*, who * said, *That if the Nipples of the Breasts are pale, the Womb is in Disorder.* *Bartholine* explains the Consent of the Womb and the *Placenta* with the Breasts, by the mutual Similitude of the glandulous Substances of the *Placenta* and the Breasts; so that the chylous Blood, which used to repara to the *Placenta*, falling in with the Breasts in the Course of Circulation, fixes there, as in a Place to which it is allied. But sometimes we meet with Milk in the Breasts of Virgins, and there we cannot but

own a Sympathy between the Womb and the Breasts, without the Intervention of a *Placenta*. Besides, Experience attests, that where there is no *Placenta* or Impregnation, the redundant Humours of the Womb frequently occasion cancrus Humours in the Breasts: And these we meet with among Nuns oftener than among other Women, not from a Suppression of the *Menses*, but by reason of their living single. For I have often seen well-complexioned Nuns who had their menstrual Purgation duly, but were mighty lascivious, die in Misery of horrid Cancers in the Breasts. And, for as much as there is scarcely a City in *Italy* without several Nunneries, we seldom meet with a Monastery which has not fresh Instances of this Misfortune. How comes it to pass then, that the Breasts, and not the other Parts, suffer so severely for the Disorders of the Womb? Assuredly there must be some occult Consent which is not yet brought to light; though it may in Process of Time, since Truth is not yet ingrossed.

This wonderful Sympathy between the Womb and the Breasts, the two Fountains of Lust, is further to be seen in the handling or tickling of the Breasts, which the Women own to be no small Incitement to Venery. *Carpus* † observes, that the handling of the Breasts, and especially the Nipples, which have Erection like a Man's Yard, revives drooping Venery: His Words are to this Purpose; *The Handling of the Breasts * invites to Venery, both in Men and Women, but especially in Women; for there run Veins from the Pudenda to the Breasts, insomuch that, if you tickle the Nipple of the Breast, it suffers Erection like a Man's Yard.* We conclude therefore, That the Sympathy or Consent between these Parts is entertained and kept up by the

* Com. 2. in An. Mu. p. 316.

the Vessels, and not by the Similitude of Substance, as *Bartholine* would have it ; for, in Effect, there is no Similitude of Substance, because, when it is cleared of the *Lochia*, and restored to its natural Magnitude, it is all over membranous, and consequently differs vastly from the Breasts, the Texture of which is rather glandulous.

Upon the whole it appears, that the Reasons assigned by the Moderns for the Turgidity of the Breasts after Child-birth, and at no other Time, come far short of *Hippocrates's* Doctrine. For, though the venerable old Man was not apprised of the Motion of the Blood and Chyle, yet he carefully remarked this wonderful Sympathy, and mutual Commerce between the Breasts and the Womb, and gave a plausible Scheme of the Production of Milk by the Pressure and Motion of the *Fœtus* in the Womb ; which whoever rejects ought to produce a better.

To leave off the Pursuit of a Secret which has been sought after in vain by so many great Men, we now return to the Disorders of Nurses in quest of some Relief for them in the Store-house of Physic. If the Disorder be violent, let it be what it will, and if it takes rise from over-suckling, let the Child be weaned, or put out to another, for the Removal of the occasional or procatartic Cause is always the best Remedy. If you suspect an imminent Consumption, the Indications of which are an universal Thinness and Leanness gradually increasing, Inappetency, want of Rest, and a pale, wan Countenance, you must immediately give over suckling, and take such Remedies as prevent a Consumption, and nourish the Body. For which End consult Dr. *Morton**, who describes a Con-

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sumption

* *Phthisiol. c. 6.*

sumption occasioned by over-suckling, and proposes various Remedies calculated for that Case. In a word, the principal Relief in such Cases is had from Asses or Cows Milk, provided an acute Fever, an excessive Sharpness in the Stomach, and such other Symptoms do not render it improper. For it is agreeable to Reason, that, if the Consumption of the Body was occasioned by a Loss of Milk, the Reparation would come by Milk again. Asses Milk is most proper in the beginning to carry off the vitious Humours, after which Cows Milk will serve to repair the decayed Body: For this is the true Method of exhibiting Milk in a Consumption, and was observed by the divine *Hippocrates* * in his History of *Eratolaus's* Son, who was reduced to the last Extremity by a long and violent Dysentery, and to whom he first exhibited Asses-milk to purge him, and then Cows-milk to nourish him. *He drank, says Hippocrates, nine Attic Heminae of Asses-milk boiled, for two Days; upon which ensued a violent bilious Purgation, with a Cessation of Pain, and the Return of his Appetite. After that, he drank at one Draught four Attic Heminae of Cows-milk crude, two Cup-fulls at a Time, adding to it the first Day a sixth Part of Water, and a little harsh black Wine.* *Martianus*, in his Notes upon this Place, adds, *It is well known that Asses-milk, which the Moderns prefer in a Consumption, is not given to recruit and repair the Body, Cows-milk being only proper for that End, by virtue of its Consistence.* In fine, a Milk-diet managed as above will do the Business effectually; for it will first clear the Body of the Redundance of Humours, and then repair it. *Dr. Morton* relates the Case of a Woman, who, after four Months

* 7 Epid. n. 3. de Nat. Mul. n. 16.

Months Suckling, was seized with a great Weakness, Inappetency and hysteric Passions, but would not comply with his Advice in giving over Suckling, and betaking herself to a Milk-diet; upon which she fell into a Consumption of the Lungs with a Cough, a Difficulty of Breathing, and a hectic Fever.

But if the hysteric Passions proceed from an excessive Plethora, as it happens to the Nurses of Great-men and Princes, then we must attempt some Evacuation, and particularly Phlebotomy, in order to ease and empty the Vessels: At the same time we ought to injoin a strict Regimen, and administer the other Remedies usual in hysteric Cases, of which we have great Variety in practical Authors. But often the hysteric Disorders of this Sort of Nurses are produced by this, that, being fed high, they abound with uterine Juice; or, to speak with the Moderns, their *Ovarium* is turgid, and the Fallopian Tube sounds a Call to Venery; in which Case they must either be dismissed from Nursing, or allowed in some measure to keep Company with their Husbands, for fear of a *Furor Uterinus*, which is highly pernicious to the Child. Now as Physicians must be very circumspect and vigilant in tracing and discovering this Case; for sometimes they conceal their lascivious Desires, and keep them boiling within their Breast for fear of being discarded, and sent Home to their poor Habitations, so that they are not seized with manifest hysteric Fits: But the hidden Passion betrays itself several Ways; as if they are not so chearful as formerly, if they are more pensive and less talkative than usually, if they chear up and frisk about when they meet or converse with a handsome Man: If these Signs appear, we may safely conclude that the venereal Sport runs in their

their Minds, which puts the whole Body into such a Ferment, that it stamps indelible Characteristics upon the Child, as it has been observed, says *Helmont*,* that a lascivious Nurse has transferred the like Temper to the Children who sucked her.

I intimated above, that often the jolly and well-complexioned Nurses, who have great Plenty of Milk, use to complain of a painful Pressure in their Shoulders, which proceeds from too full a Stream of the lacteal Juice, passing through the thoracic Ducts to the subclavian Vein and the Breasts: In which Case they ought to observe a spare Diet, and abstain from such Things as are apt to enlarge the Quantity of their Milk. That this Disorder was known to *Hippocrates* is plain from that Passage, where, speaking of pregnant Women, he says, *Meat and Drink puffs up the Shoulders*: And *Martianus*, commenting upon the Place, derives the Matter of the Milk from the Stomach, that being the chief Spring of the Body, which gives and receives from all Corners, and calls in the Testimony of the Nurses themselves, who, as soon as they have eat or drank, perceive a Humour descending from the Shoulders by the Clavicles to the Breasts; and this they are most sensible of when the Child sucks; whence it comes to pass, that nothing takes off a Woman's Milk so effectually as the Application of Cupping-glasses to the Back; and for that Reason scarcely any Nurses care for that Remedy.

As for the cuticular Eruptions which Nurses are afflicted with, it is a hard Matter to avoid them, while they carry in their Arms and suckle Children, who have commonly a *Crusta Lactea* upon their Heads.

* *De Infant. Nutrit.*

Heads. The Remedies for this Disorder ought to be chiefly external without insisting upon Purgation, and a thousand other internal Means commonly used in cutaneous Disorders. Let the Ointments calculated against the Itch be applied, even when the Body is unpurged; for the Disorder proceeds not from a vitious Collection of Humours in the Body, but from the Contact and perpetual Handling of the Children, so that we have nothing to fear from extinguishing out of hand the scabby *Miasmata* which stick in the Skin. Indeed, if the Itch or Scab take rise from a Cacochymy, occasioned by long Suckling, we must take another Course: For then the peccant Humours must be purged off, before the Application of the external Topics. But I have known a great many Nurses perfectly cured without any Remedies, in a few Months after they gave over Suckling; and that of a very foul Scab which was only caught by continually handling scabby Children. Nurses ought therefore to be very cautious in handling the Children they suckle, and endeavour as much as possible to keep both themselves and the Children clean and sweet; for if that Caution were duly observed, Children would not be so liable to foul ulcerous Eruptions, as they commonly are; neither would they waste and pine away so often in perpetual crying and yelling. *Galen* * has a Story of a Child who had cried all day, and would not be appeased neither by the Breast, nor Dandling, nor any other usual Way; till by *Galen's* Orders the Child's Linnen was shifted, and itself washed in a sweet Bath, upon which it was still and slept a long while.

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* 2 De San. Tu. c. 8.

Before I take leave of the Nurſes, I have one Caution of ſome Importance to lay before them, for the Regimen both of themſelves and the Children; which is, that they ought not to ſuckle their Children ſo often as they uſually do, nor ſet them to the Breſt as often as they cry. Moſt Nurſes are very faulty in this reſpect; for they will give Children the Breſt a hundred times a Day, and oftener in the Night-time to be free of their Noiſe: By which means they exhaust themſelves, and ſtuff up the Child with too much Milk, and ſo both one and the other are miſerably ſick. For how can the tender little Stomach of the Child digeſt ſuch a Quantity of Milk, without giving riſe to Crudities, ſour Humours, Coagulations, and frequent Vomitings? And how can the Nurſe's Body do otherwiſe than waſte upon continual Suckling? Affuredly our ruſtic Women breed up their Children with more Caution; they ſuckle them only three or four times a Day, and ſo go about their Buſineſs, leaving them to cry as long as they will; in which Point they ſay they obſerve the Example of ſucking Calves, which are allowed to ſuck the Cow only thrice every Day. This Abufe, of giving Children ſuck ſo frequently, gave riſe perhaps to the Cuſtom which now obtains in *England* and *Germany*, of nourishing the Children with Pap made of Cow's Milk, Yolks of Eggs, and Sugar; by which Method the Regimen of Children is more eaſily laid down, and their due Meaſure of Aliment is adjusted by the Senſes. See upon this Subject the admirable Inſtructions of *Helmont*, *Et-muller*, and other Writers.

C H A P. XXI.

*Of the Diseases incident to VINTNERS
and BREWERS.*

HAVING thus taken a sufficient View of the Milk-liquor, which first nourisheth us, we come now to consider that Liquor which adds Life and Spirit to social Extertainments; I intend to step into the Cellars and Ware-houses, in which the Vintners prepare the Wines, and distil Brandy in the Autumn, and to examine the Disorders to which these Workmen are obnoxious. I do not design in this Place to touch upon that Kind of Drunkenness which proceeds from the Drinking much Wine, but upon that which flows from the Smell and Spirits of the Wine, dispersed through the Air, and conveyed along with it through the Mouth and Nostrils: For the Servants employed in this Work, though otherwise ever so sober, do often undergo all the Symptoms and Inconveniences of Drunkenness, meerly from their being constantly employed in pouring out Wine, and taking the Grapes out of the Presses.

The Country of *Modena* affords a very pleasant Prospect in the autumnal Season, of large Work-houses, huge Presses, and long Rows of Casks, with Laboratories, in which Wine is distilled: For Wine and Brandy afford the chiefest Branch of the public Revenue, especially in that Part of the Country which lies between the *Secchia* and the *Panare*, which produces greater Plenty of Brandy, than any Part of the Ground on either Side of the *Po*, and exports every Year thousands of great Casks
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of Brandy to *Venice, Milan, and other Towns*. Now it being known by Experience, that a great deal of Brandy is drawn from the Grapes themselves, the Vintners therefore keep the Grapes long pressed in the Presses with great Weights of Beams upon them, and suffer them to undergo an Ebullition along with the Wine, and a Fermentation for some Months; nay, even for a whole Winter: After which they put the Grapes, with some Part of the Wine, into large Copper-veffels, and so make a Distillation. In former Times they used to squeeze out in the Press all the Juice which was in the Grapes; but having since observed, that Distillation, though a laborious Work, draws much more Brandy out of the Grapes, they have quite laid aside the Use of Presses in their Brandy-Laboratories.

Now the Servants who assist at the Distillation, and after it is over take the reeking Grapes out of the Copper-veffels, and put in fresh ones, and cask-up the Brandy, almost all of them get drunk in thus performing their Office. It is true, this Service is not performed in close subterraneous Places, but in large open Portico's; but still there is such a Diffusion of the volatile Parts of the Brandy, that, if a Stranger sets his Foot in the Place, the Sharpness of the Smell proves too strong for him in a little time. Nay, the Hens and other House-poultry, the Hogs and other Animals, bred up in those Places, become drunk by feeding upon the hot Grapes, taken out of the Stills. In a word, those who do this Sort of Work for several Months together, and spend most of the Winter in such Laboratories, grow lethargic, meagre, dejected, and vertiginous, with little or no Appetite.

In order to fix the true Cause of Drunkenness, it will be worth the while to enquire, Whether the

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inebriating Virtue of the Wine lies in its acid, or its alkaline, its fixing or its fusing Faculty? This Question is learnedly discussed by *Etmuller*†, who recounts the various Opinions of Authors, and brings in the Arguments on all hands; but in his own Opinion confutes the Reasons of *Tachenius*, *Bekius*, and others, who charge the acid Faculty of the Wine with the inebriating Virtue, and lay the whole Blame on the alkaline and sulphureous Parts.

I had once a Conference upon this Subject with a very learned Chemist, who offered a great many weighty Reasons, to prove that the whole inebriating Faculty lies in a volatile Acid, which is predominant in the Wine, and by virtue of which it passes from Stum to Wine. The Arguments he offered to make out this predominant Acidity were briefly these. 1. That curious Experiment of *Van Helmont's* *, by which Spirit of Sal Almoniac does almost in a Minute of Time turn Spirit of Wine into a white Curd, which is so much the thicker, as the Spirit of Wine is purer. 2. The Effervescence observed in hot Blood upon the Affusion of the Spirit of Wine, in the same Manner, as if the Spirit of Vitriol had been poured upon it. 3. The precipitating Virtue of the Spirit of Sal Almoniac upon the Tinctures of Myrrh, Castor, and others prepared with the Spirit of Wine: Which indicates that the volatile Acid of the Wine falls upon the loaded alkaline Spirit, and precipitates the Body held in Dissolution. 4. The Enervation of generous Wine by absorbent Alkalines, such as Sulphur, Crabs-eyes and Egg-shells; inso-much that it will not afterwards attack Steel, and upon Distillation yields only a weak Spirit in small
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† *Diff. de Temul.*

* *De Aur. Vital.*

Quantity. 5. The Extraction of an ardent and inflammable Spirit from Vinegar, attested by chemical Operations. 6. The alkaline Nature of the Remedies which either prevent or cure Drunkenness; such as Mustard-seed taken fasting and vulgarly used on such Occasions; the roasted Lungs of Cattle according to *Pliny*†, Garlic is recommended by *Hippocrates* ‡ to such as either are drunk or are about to drink hard; and in fine all the Remedies, usually administered to drunken Persons, which being plainly full of alkaline Parts, would be so far from removing Drunkenness, or its Cause, that they would rather serve to fortify it, if the inebriating Power of the Wine lay in its sulphureous and alkaline Parts. Such were this learned Man's Arguments for the acid Quality of Wine, to which I shall now add a Counter-balance of Arguments on the opposite Side, and then give satisfactory Replies to the former.

That the inebriating Power of the Wine lies in the sulphureous and alkaline Parts is manifest from these Reasons. 1. The Inflammability of Spirit of Wine; for it is plain, that Quality cannot be ascribed to any Spirit which is manifestly acid, such as Spirit of Vitriol, Nitre and Tartar; nay, such Spirits are apt rather to destroy Inflammability, as appears from Gun-powder, which, after being sprinkled with Spirit of Vitriol and dried, does not take Fire; whereas the wetting of the Powder with the Spirit of Wine does not produce that Inconveniency. 2. The Use of Wine and Spirit of Wine in Ulcers and Gangrenes, for controuling the luxuriant and corrosive Acids which feed the Ulcers. Were Spirit of Wine an Acid, it would be of pernicious Consequence in such Cases. 3. The con-

† *H. N. l. 3. c. 14.*

‡ *De Vlc. Acut. n. 59.*

constant and unquestioned Observation, that Spirit of Wine never degenerates to Vinegar, but only palls and grows weaker through Age, for Wine becomes acid rather through the Loss, than through the Depression, of the spirituous Part. To the same Purpose is another familiar Observation; that when Wine begins to be sour it affords but very little Spirit; whereas the palled and musty Wines yield a considerable Quantity; and for this Reason, those who distil Brandy for public Sale, use to buy up the decayed Wines, in order to draw the Spirit from them; but they never meddle with sour Wines, it being beyond the Power of Art to draw any Thing from them, but an insipid Phlegm, and then a sharp Liquor. 4. The Dulcification of acid and mineral Spirits, such as those of Vitriol and Nitre, performed with Spirit of Wine; which, if it were acid, would never correct nor tame those acid Spirits; for any Thing rather corroborates than weakens what is like to itself*. 5. The remarkable Effervescence of Spirit of Wine with Spirit of Nitre; which indicates that the Nature of the former is opposite to that of the latter, which is manifestly acid. 6. The Rectification of Spirit of Wine without Distillation, by the repeated Infusion of Salt of Tartar, Lime, and Pot-ash; for if Spirit of Wine were an Acid, Salt of Tartar and Lime, which are the principal Alkalis, would not rectify and strengthen it, but would rather weaken it by absorbing the Acid. It is true, Salt of Tartar may be said to rectify Spirit of Wine by absorbing its Phlegm; but I see no Reason why it should not be supposed to absorb the Acid, if any such were in the Spirit, and to load itself with that rather than with the Phlegm. 7. The Aptness of Wines

* *Etmul. Pyr. Rat. c. 10.*

Wines strained through a Bag, to turn sour, especially in Summer, which is not observed in other Wines, these being preserved from Sourness by their spirituous Particles. 8. The Observation, that generous Wines are less hurtful to gouty Persons than small sharp Wines, such as *Rhenish-wine*, which *Sylvius* † condemns in arthritical Cases, as being possessed of little volatile Spirit: The same Remark being made long before by *Crato*‡, who writes, that in the Gout a little *Hungarian* or *Malmsey-wine* is much better than large Quantities of small Wines. The same Thing is vouched by *Helmont*, *Willis*||, and other judicious Authors, who absolutely reject small and acid Wines, as being apt to inflame arthritic Pains by multiplying the Acid.

As for the Objections started by Chemists, in favour of an inebriating Acid in Wine, I answer, first, That the Experiment of the Coagulation and Effervescence of Spirit of Wine with the Spirit of Urine does not evince an Acidity in Spirit of Wine; for many Alkalis undergo Effervescences upon a mutual Mixture; witness the famous *Joh. Bohn's* * Experiment of Salt of Tartar, mixt with Oil of Tartar, which is not owing to an occult Acid imbibed by the Tartar in its Solution; for the same Effervescence follows upon the mixing of Water with Salt of Tartar. In fine, it is well known that many Acids undergo an Effervescence among themselves, as well as many Acids mixt with Alkalis; so that the Experiment of Spirit of Wine with Spirit of Urine cannot be laid down for a general Rule.

† *Append. Prax. Med. Tra.* 8. n. 254. ‡ *C.* 2. *Conf.* 27. || *In Volup. Vivend. de Anim. brut.* p. 2. *c.* 14. * *De Aer. in Subl. Inst.* c. 4.

As for the Ebullition, observed in new-drawn Blood upon its Mixture with Spirit of Wine, as much as if it had been mixed with Spirit of Vitriol, it is observable, that this Ebullition is various, and does not always answer the same Way, pursuant to the various State of the Blood, which abounds sometimes with an Acid, sometimes with an Alkali; so that, when we see the Ebullition very great, we may conjecture a Redundancy of an Acid in the Blood. The Precipitation of Tinctures made with Spirit of Wine, performed with the Spirit of Sal Almoniac, is of no great Weight; for many Precipitations are accomplished by simple cold Water, as in the Preparation of the Resin of Jalap; so that, if Spirit of Wine were an Acid, pursuant to the chemical Rule, that what is dissolved by an Acid is precipitated by an Alkali, it would follow, that Water must be an Alkali; whereas it is well known to be an insipid Body, and so far from partaking of any Sort of Sharpness, that it corrects both an acid and alkaline Acrimony.

Neither is the Enervation of Wine by the Infusion of Alkalis sufficient to evince, that Wine inebriates by its Acidity; for when various Bodies are mixed together, they make a new Concrete of different Virtues. Thus we see Water enervates both Acids and Alkalis, and dilutes any sort of Acrimony. The drawing of some Portion of ardent Spirit from Vinegar, does not prove that Spirit to be an Acid; for there is no Body, whether acid or alkaline, so very simple, as not to contain in its Bosom something of a Force opposite to its own Nature.

As for the last Objection, taken from the alkaline Nature of the Remedies which prevent or cure Drunkenness, we must observe, that these respect
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the Cause of the Disease, rather than the Disease itself, by promoting a plentiful Evacuation of Serum by the urinary Passage, and so facilitating the Solution of Drunkenness; from whence it follows, that they must likewise have a perservative Virtue; for we learn from *Hippocrates's* Oracle,* that *quæ facta tollunt, ante facta fieri prohibent*. Besides, Acids, and particularly Vinegar, are likewise good Remedies against Drunkenness. *Etmuller* † recommends, as a powerful Discusser of Drunkenness, Vinegar applied to the Head, and a Fomentation of the Juice of House-leek and Vinegar applied to the Testicles.

Pursuant to this Doctrine, *Etmuller* and other Authors impute the Cause of Drunkenness to a volatile Alkali, or narcotic Sulphur in the Wine, which retards the Motion of the Humours and Spirits. They ground this Assertion upon the Tremblings, Stupidity, and sleepy Disorders which ensue upon Drinking, after the same manner as upon the Taking of Opium. But it is to be doubted, whether the Wine produces these Effects by a fixing, constricting Quality; or whether, considering that no Substance is more spirituous than Wine, and approaches nearer to the Nature of the Blood and Spirits, it does not rather operate by the Humours, and unlocking the Orifices of the Arteries dispersed through the Brain, and so overcharging the whole System of that Organ with Serum, as to soften and relax the Spring of the Nerves. The same Conjecture may be made of Opium, that it does not incrassate and fix the Humours, as it is commonly thought to do; but rather colliquates them by its volatile Alkali; a Proof of which may be gathered from its diaphoretic and diuretic Virtue. The Consideration of this put
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* 3 in 6. Epid.

† Vig. & Somn. c. 8.

the learned *Willis* * to a stand ; for he confesses he could not easily perceive these Qualities of fixing and incrassating the Blood, which some attribute to Opium. However the Matter is as to the fixing or settling of Opium, which I am not now at leisure to insist upon, this I will venture to affirm of Wine and Spirit of Wine, that, though they cause almost the same Accidents with Opium, such as Tremblings, Drowsiness, profound Sleep, and Speechlessness, yet they operate after a different Manner from the Opium ; for, after the Use of Opium, we find the Pulse low and slow, the Face pale and ghastly, and the Extremities cold ; but, after Hard-drinking of Wine or Brandy, we find for the most part a strong Pulse, a red Face, flaming Eyes, and swollen Veins ; and accordingly *Virgil* †, speaking of the Drunkenness of *Selenus*, says,

Imflatum hesterno venas, ut semper, Iaccho.

Further, that the Spirit of Wine throws the Serum, out of the Mass of Blood upon the Brain, is plain from ocular Inspection ; for *Bonetus* || affirms, that, in dissecting the Cranium of those who died in Drink, the Brain was found covered with a great deal of whitish or milky Serum. This Fusion of the Serum is further confirmed by the true Solution of Drunkenness, in *Hippocrates*, * which consists in a copious Evacuation of Serum by the urinary Passages ; for, though speedy Vomiting is of great Service to lessen the Disorders of Drink, the true Solution is by the way of Urine. So true it, is that Wine cures the very Indisposition it causes, to wit, by its Faculty of attenuating the Humours and promoting Urine. This seems to be hinted at by *Aristotle* †, who, upon the Question,

* *Pha. Rat. L. 1. Se. 6.* † *Ecl. 6.* || *Scpul. p. 1. Se. 13 ob. 87.* * *5. Aph. 5.* † *Se. 3. Pr. 3 and 22.*

tion, Why diluted Wine is more intoxicating than pure Wine? gives in this among other Reasons, That Wine concocts itself as well as other Things. It is plain from *Hippocrates* ||, that the Ancients found Drunkenness to be of some Use. *Mnestheus* ‡, the *Athenian* Physician, in his Epistle of Hard-drinking in *Atheneus* and *Langius*, speaks to this Purpose: “ *Those who swallow great Quantities of Wine suffer great Disorders both in Body and Mind; but to be fuddled now and then serves, in my mind, to purge the Body and refresh the Mind: For our ordinary Drinking makes a Collection of sharp Humours in the Body, which upon Hard-drinking are most conveniently purged off by Wine.*” It is plain therefore from this very antient Author, that the *Lacedemonians* purged their Bodies by Wine and Vomiting, and exhilarated the Mind with a social Cup.

I have oftentimes observed in the Autumn, when the Wine is continually a making and casking-up, that the Servants employed in this Work void a great Quantity of Urine, insomuch that they make Water a hundred times a Day, and their Urine is thin and limpid like Water. Now this I can impute to nothing else, but the plentiful Emanation of Spirits from the Wine, which enter the Body by the Organs of Respiration, and colligate the Serum in the Mass of Blood. Accordingly, I have found new Wine much more diuretic than old Wine, though never so generous; so that when I mean to remove a Redundancy of Serum by the Way of Urine, I positively prefer the new Wine to the old; only take care to have it strained and cleared of its grosser Parts.

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|| 3. *De Dietet. n.* 22.

‡ *Lib. 11. c. 10. L. 1. E. 30.*

To return to the principal Scope of this Chapter ; I am of Opinion, that in these Workmen the volatile Parts of the Wine, with which the Air is impregnated, affect and put into a Fermentation, first the Blood, and then the Animal Spirits ; for every one knows, that Wine is much of the same Nature with the Blood ? and to this Purpose the famous *Androcydes* in *Pliny* * when dissuading *Alexander the Great* from Intemperance, advised him always when he drank Wine, to call to mind that he drank the Blood of the Earth. It is by Virtue of the same Affinity, that the Animal Spirits are affected, there being so many of them generated by the perpetual Accesses of the Spirit of the Wine, that they cannot be lodg'd within the Precincts of of the Brain : Upon which ensues the Perturbation of the animal Oeconomy, not unlike the Republic of the Bees, which suffers Commotions when the Hive is overstocked. Hence proceed *Vertigoes*, Stupidity, and Head-achs, just as in the Case of a Distention of the Vessels, with a great Plethora ; and at last, the whole natural Oeconomy being perverted, there ensues a Leanness, a Prostration of Strength, and the other above mentioned Accidents, which are of a milder Form in those who are long accustomed to the Business, but very severe in such as are but lately come to it. *Zacutus Lusitanus* † relates the Case of one who going accidentally into a Wine-Cellar, was so struck with the Smell of the Wine, that he fell down and expired in a few Hours.

The same Accidents happen in those Countries, where they have Ale instead of Wine, as *Germany*, *England*, and all the Northern Countries. For, though Vines grow in these Countries yet the Grapes are for the most part not sufficiently ri-

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pened; and so they supply the Want of Wine, with a Liquor prepared with Hops, Barley and other Grain, of which they have great Plenty; and with this Liquor they get drunk as well as with Wine. That the Northern People in antient Times brewed such Drink for their own Use, is plain from *Virgil*, who, speaking of a Country that lies far North, says,

*Hic noctem ludo ducunt, & pocula Læti
Fermento, atque acidis imitantur Vitea Sorbis.*

I am informed by Authors, and other learned Men, that the Brewers of these Liquors are liable almost to the same Disorders with our Vintners and Distillers of Wine: For this Sort of Drink is very intoxicating, and it affords an ardent Spirit which *Platerus* † ascribes to the Hops, and so those who prepare, brew, and cask it up are usually subject to Heads-achs, *Vertigoes* and Anxieties of the Breast, there is therefore great Affinity between Beer and Wine; for as Wine is known to undergo a considerable Alteration in the Spring, when the Vines flourish, by Virtue of the odorous Effluvia dispersed through the Air, so the Beer works and suffers a Commotion when the Barley begins to flower: And, as the immoderate Use of Wine and its Spirit sinks the Appetite, so does Beer, according to *Helmont*, || who says, it breaks and enervates the Ferment of the Stomach. *Pliny* * is so amazed at the inebriating Faculty of Malt-liquors, that he says Vice and Debauchery have been so wonderfully ingenious as to find out a Way to make Water intoxicating.

To

* 3 *Georg.*
Læsa.

† *T. Pra. Med. c. 3.*
* *L. 14. N. H. c. 22.*

|| *De famo*

To conclude, it is but reasonable that the Art of Physic should provide some Relief for the Preparers and Distillers of Wine; that being a Commodity of such Importance, not only for common Occasions of Life, but for the Preparation of the better and handsomer Sort of Remedies; insomuch that if the Chymical Laboratories had been deprived of the Spirit of Wine, Chymistry had never rose to the Reputation it is now possessed of. *Galen* † had some Apprehension of this Art of distilling and seperating the various Substances contained in Wine, the Knowledge of which he wished for so passionately, that he says he would undergo any manner of Danger, if he could but find out a Machine or Art for separating the contrary Parts of Wine as well as Milk. For my Part, when I have such Workmen under my Care, I advise them to abstain altogether from Wine, and particularly from Brandy, and Spirit of Wine, especially during the Season of this Work; to turn away their Faces as much as they can from the Steams which fly out of the Wine, to sprinkle their Faces now and then with cold Water, and to step sometimes out of the Work-houses to take the fresh Air. When they are so ill as to be confined to their Beds, we must prescribe such Remedies as are usual against Drunkenness, and the disorders which attend it; upon which Subject we may consult several Authors, but especially *Etmuller* || such Remedies are Vinegar, Castor, and especially Spirit of Sal-ammoniack, for nothing corrects the Disorders arising from the Abuse of Wine, more effectually, than what partakes of a volatile, urinous Spirit.

I 2 *Pliny*

† Lib. 1 *de Simpl. Med. fac.* c. 17.

|| *De Ten Mul.*

Pliny reckons up a great many Things for preventing Drunkenness, which are commonly known; such as bitter Almonds, Colewort, and all sweet Things. To these the late Authors have added a great many more, and particularly *Platerus*, who bewailing the Custom of the Country, which made Civility and Hospitality to consist in drinking hard, gives a tedious List of Remedies to prevent Drunkenness; such as Wormwood, Rue, Milk, the Lungs of Animals roasted, Poscae, Vinegar, and Water, four Apples, and several compound Electuaries, Mixtures and other Preparations.

To such Workmen, as by reason of their narrow Circumstances, cannot procure such costly Remedies, we must prescribe the simpler Medicines, and such as are more easily prepared, Colewort, the Virtue of which has been extolled for many Ages, both for preventing and curing Drunkenness; Radishes, and Water diluted with Vinegar, which *Platerus* calls the Antidote of Drunkenness.

C H A P. XXII.

Of the Diseases of BAKERS and MILLERS.

Hippocrates * says, there are very many Arts and Callings, (*Physic may be reckoned one of the Number*) which are very useful and pleasant to those who stand in need of their Assistance, but occasion a great deal of Trouble and Labour to those who

* *De Flat. n. 1.*

who practise them. And such surely is the Trade of Baking, for what is more useful and even necessary to Life than Bread? and what can be more inconvenient and troublesome to Tradesmen than the Baking of it? For in sifting the Flower, in kneading it into Dough, and in baking that in the Oven, they are in all these Steps exposed to infinite Fatigue and Toil, and so brought under the lash of various Diseases. Bakers are generally at work in the Night-time, whilst others, having finished the Task of the Day, are recruiting their Spirits with seasonable Sleep; and then in the Day-time are shut up like Owls to take their Rest: So that, in one and the same City, we have *Antipodes*, that is such as follow contrary Ways of Living. *Martial* to insinuate that the Night was far spent and Day approached, says,

Surgite, jam vendit pueris jentacula pistor.

And indeed, when the Day dawns and the Citizens return to their daily Exercises, there is a Necessity of having Plenty of Bread ready at hand, or else their Bellies would rise up in Sedition. History affords us signal Instances of violent Commotions raised in great Cities by a Scarcity of Bread; and not long ago the Court of *Spain* was under violent Apprehensions of a popular Insurrection upon the same Account. Hence *Juvenal* * recommends *Bread* and the *Ludi Circenses* (that is, Plenty of Provisions and diverting Shews) as the most effectual Means to keep the People to their Duty.

In the first Place those who bould the Flour and cleanse it from the Bran, and are always shaking

and turning the Sacks and Bags, cannot possibly so cover their Faces as to avoid the Inspiration of the flying Particles of the Meal, together with the Air; and these being fermented with the salivary Juice, stuff up not only the Throat, but the Stomach and the Lungs, with a tough Paste; by which Means they become liable to Coughs, Shortness of Breath, Hoarseness, and at last to Asthma's; the Wind-pipes and the Passages in the Lungs being lined with a Crust which interrupts the Intercourse of the Air. Further, the Particles of the Flour or Meal, which adhere to the Eyes, pinch them very much, and often occasion a Blearedness.

I freely own, I cannot think of any effectual preservatory Caution for these Workmen. I approve of the Custom they have of tying a linnen Swath round their Face, but that will not hinder the Atoms of the Flour to enter the Breast along with the Air. *Pignorius* * in his excellent Treatise *de Servis*, quotes the Authority of *Atheneus*, to prove that this Custom is very antient; but it is plain they did not do it out of any preservative Design, but to prevent the dropping of the Sweat off their Faces upon the Bread, or the tainting of the Bread with their Breath. In fine, all I can advise these Workmen to do, is to wash their Throats frequently with Vinegar and Water, to take Oxymel often, to purge now and then, or, when they are pressed with a Difficulty of Respiration, to take an Emetic, which will throw off the Matter, which clings to the Passages. I have known an Emetic cure some who were reduced to the last Extremity.

Next

Next in Order, are those who knead and work the Paste with their Hands, and form it into Bread and Loaves. These Men do their Work commonly in hot Places, especially in Winter, to promote the Fermentation of the Bread; and so, having Occasion, when their Work is over, to go from Places of extreme Heat to the open Air, are readily seized with a violent Constriction of the Pores of the Skin, which in Process of Time gives Rise to a dull Heaviness, Hoarseness, and the Diseases of the Breast, such as *Pleurisies* and *Peripneumonias*. Now these Diseases are so common, that every one knows the Remedies calculated to cure them: But in curing them it is of no small Use to know, and have a particular Regard to the occasional Cause; and for that Reason, in the Case now before us, we must chiefly endeavour to retrieve the natural Perspiration of the Body, by keeping the Patient in a warm Room, using Frictions with Oil, and exhibiting Diaphoretics inwardly. I have observed, with some Surprise, and that among this Sort of Men more than among Persons of other Trades, that violent Pleuritis have been terminated by a plentiful Eruption of Sweat, even in the Beginning of the Disease, without any manner of Spitting: And this, in my Opinion, comes to pass, because in such Cases the acute Fever, which is the primary Disease, accompanied with a Pain in the Side, takes Rise rather from the external Cause, which is the sudden Stoppage of the Pores of the Skin, than from a faulty Collection of Humours; so that, when the Vents of the Skin are open, and Sweat breaks forth, the Fever and pleuritic Pain vanish at once; the Matter, which had been thrown in upon the Breast, being thus recalled to its wonted Passages.

So important is that Advice of *Hippocrates*, * *Devenire ad occasionem & occasionis initium*. To come to the Cause and the Beginning of the Cause.

Sometimes the Hands of the Bakers are swelled and pained: And indeed it is observable, that all of them have very large thick Hands, which is owing to the continual kneading of the Paste, which squeezes the nutritious Juice in great Abundance out of the Orifices of the Arteries; for the Juice remains there, its Return being prevented by the Stricture of the Fibres. So that Bakers quickly discover their Trade, when they shew their Hands, for no Tradesmen have larger Hands than they. Exercise, as *Avicenna* says, enlarges a certain Member; and the Truth of that Saying is manifest in other Parts. To conclude, I would advise those, whose Hands are swollen and pained, to wash them in Lie, generous White-wine, and the like.

Of all the Retainers to the baking Trade, perhaps those who only bake the Bread in the Ovens are least exposed to Injuries; for, though they suffer not a little from the excessive Heat in filling and drawing the Oven, especially in Summer, while they are covered all over with Sweat, yet they are much refreshed with the Smell of the hot Bread: For new Bread is a great Restorative, and exhilarates the Spirits with its very Smell, as *Wedelius* † remarks, *de Sale Volatili Plantarum*, and *Becherus* in his *Physica subterranea*, where he prefers the Smell of Bread to the comforting Virtue of Pearl.

I have observed, that the Bakers of large populous Cities, the Inhabitants of which chuse rather to buy than to bake their own Bread, are oftner

* 4 in 2. Epid.

† Cap. 4. L. 1.

oftner sick than those of small Towns and Villages, where almost every Family bakes for itself, *Pliny** informs us, that, from the Building of *Rome* to 530 Years after, the *Romans* had no Bakers; but the *Quirites* themselves had their own Bread made at Home, that being the Womens Province: But that afterwards, when the City grew populous, the Trade of Baking was brought in by the public Slaves. When such Workmen therefore are ill, let their Disease be what it will, we must carefully remember the Disorders they are exposed to in the Way of their Business.

I have chose to throw the Millers or Grinders of Corn, into the same List with the Bakers; for when the Corn is reduced to fine Flower, the Particles fly about and fill the whole Mill; so that, in spite of their Teeth, their Mouth, Nostrils, Eyes, Ears, and indeed the whole Body is covered with Meal? the Consequence of which is, that many of them become asthmatic, and at last hydropic. They used likewise to be seized with Ruptures by the Breaking or Relaxation of the Peritonæum, in carrying Sacks of Corn or Meal upon their Shoulders; and, being obliged to lie Night and Day in the Noise of Water-falls, Wheels, and grinding Places, almost all of them are deafish; for the Drum of the Ear, being perpetually struck with too strong an Object, loses its Tone and Spring.

It is worth observing, that both Millers and Bakers are generally troubled with Lice, insomuch that the common People call Lice the Millers white Fleas, by Way of Banter. I am at a Loss to determine, whether this proceeds from their being constantly covered with Dirt and Dust, or from their Custom of sleeping with their Cloaths on, or from

the Mixture of the Flour or Meal, with the Excrements of the Skin, as being a fit Matter for the Generation of such Animals : But it is certain, that most Millers are in this Condition, which, if *Daniel Heinsius* had been aware of, he would certainly have made room for them in his admirable Oration, *de laudibus pediculi*.

These Tradesmen were subject to more violent Distempers in antient Times than they are now. For the Antients had not such Machines for grinding Corn as we now have, by the Help of Waterfalls, which turn great Wheels about; though indeed *Palladius*, * an ancient Author, makes some Mention of the Grinding of Corn by the Force of Water. They used to grind their Corn in *Pistrina*, which are now used for bruising and taking the Husks off Grain. Their Wheels were turned not only with Cattle, but with Men, and Slaves, and Women : And from thence rose the Name of *Molæ trusatiles*, *Handmills*, because they turned them round (*Trudebant*) with all their Force. Criminals were commonly condemned to this Work at the *Pistrinum* : And we see in *Plautus*, there was nothing so frequent nor so ominous to Slaves, as the Word *Pistrinum*. *L. Apuleius* says, he was made an Ass, tyed to a Mill with his Face covered, and forced to tread over his own Footsteps. We read in sacred Writ, that *Sampson* had his Eyes put out by the *Philistines*, to qualify him for the Turning of a Mill (which was probably a Handmill) for they used to put out the Eyes of such as were doom'd to this Service, to prevent their being giddy.

It is plain therefore, this was a very laborious Exercise, that both Men and Women were doom-

ed

d to; and that it would quickly kill them, by subjecting them to dismal Disorders. * Hence *Job*, among other Imprecations, to compleat his Misery, puts in this. *May my Wife grind to another*; that is, as *Vatablius* and other Interpreters take it, *let her become a mean Servant or Slave*; though indeed some take it in an obscene Sense; upon which Subject see *Pfeiferus* † in his *Hebrew Antiquities*. The *Romans* had likewise great Numbers of *Pistrina*; nay, every Quarter or Ward of *Rome* had a determined Number allotted it; as *Victor* observes, *de Urbis Regionibus*. But now that Water-mills are so common every where, the *Pistrina* are only used for bruising or splitting of Grain. And so, the Yoke of Slavery being likewise taken off by the Christian Religion, the grinding Trade is not so hard and laborious, nor yet so apt to occasion Distempers as in former Ages. Both Millers and Bakers require the same Method of Cure, when the Disorder takes its Rise from the volatile Flour sucked in at the Mouth. If they are seized with Ruptures upon carrying heavy Burdens, let them wear Trusses; and indeed I usually advise them to wear Trusses likewise by Way of Prevention.

As for the Loufiness which afflicts them, they must take Care to keep themselves very clean, and shift often; and wash themselves with the Decoction of Worm-wood, Peach-leaves, Centaury, Staves-acre, and Lupines. *Q. Serenus* recommends the Application of Bran mixed with Vinegar: But, above all, the effectual Remedy is Liniments containing Mercury, kill'd in Spittle. The Linnen, which Gold-smiths wipe their Plate with after Gilding, is likewise of good Use.

C H A P.

* C. 31.

† Cap. 1. de molend Hebr.

C H A P. XXIII.

Of the Diseases of STARCH-MAKERS.

THOSE employed about the making of Starch are likewise liable to uncommon Disorders. Starch is so commonly used for the whitening of Linnen, that every old Woman knows how to make it. In this Country it is commonly made by the Nuns, who sell it afterwards to the Apothecaries, and other Shops. They take, in the Summer-time, Wheat steeped in Water till it is rotten, and put it up in marble-Vessels; then one of their Servants treads with his Feet the Wheat thus softened, just as we press Grapes in Autumn. Now though this is done in the open Air, yet the Smell, which exhales from that frothy Matter is so disagreeable, that both he who treads it, and the Maids who attend to gather up the squeezed Matter with their Hands, and take the Juice out of it to be dried in the Sun, complain much of the Head-ach, of a Difficulty of Breathing, and of a Cough which is so troublesome, as to force them to intermit for fear of Choaking. This Smell is to me absolutely unsufferable, for it savours of a most penetrating Acid; and it is probable, that the volatile Acid with which Wheat abounds, being put into Motion by the Fermentation, deserts the Fellowship of the other Parts, and flies most of it into the Air: At this Rate it cannot but be apt to excite Head-achs, with a Difficulty of Respiration, and a Cough: For nothing is more offensive to the tender Texture of the Lungs, and the membranous Parts, than an acid Exhalation; such is the Smoak of Sulphur, and other acid Things.

I usually advised the People, employed in this Work, to do it in as open airy Places as they can find; and when they have already sustained any considerable Injury, I prescribe, with Success, Oil of Sweet-almonds, Emulsions of Melon-seeds, Barley-ptisans, Treacle-Waters, Draughts of generous Wine, and smelling to the Spirit of Sal-ammoniac.

Now, that I am upon this Subject, I shall take occasion to enquire a little narrowly into the Nature of Starch, which I reckon to be somewhat different from what the Physicians generally take it to be. By the unanimous Consent both of the Ancients and Moderns, Starch is supposed to possess a Virtue of qualifying sharp Humours, stopping Fluxes, and healing Ulcers. *Pliny* * commends it in a Spitting of Blood and Pains of the Bladder. *Galent*†, cries it up mightily in a Looseness, in Inflammations of the *aspera arteria*, in a running of the Eyes, and in all Cases where ulcerated Parts want to be softened and smoothed. *Vallesius* in his Book, *de Sacra Philosophia*‡, prefers it before all other Remedies for the Cure of a Dysentery, and correcting any Sort of Acrimony. The same are the Sentiments of all who have wrote of Starch.

This Opinion may seem very probable, upon the Consideration, that Starch is insipid as to the Taste, and consequently an excellent Absorber of sharp Matter, and likewise, that what Acrimony or Acidity was in the fermented Wheat, is supposed to exhale in the Preparation, and the watery Humour which partakes of the Sharpness, is supposed to be wasted during the Exsiccation of the Starch before the Summer-Sun: For, as *Gorræus* ‡ has it,
Starch

* Lib. 22. c. 25. H. N. † *De simp. med. fac.*
2. c. 36. ‡ *De Comp. med. 2. loc.* ‡ *De fin. Med.*

Starch must be dried with a very hot Sun, lest, if any Moisture be left, it should contract an Acidity. But the frequent Observations made by the Women, who commonly use Starch in this Country to whiten and stiffen the Linnen, have taught me to suspect the Nature of Starch, and not to trust altogether to its Whiteness. For they observe, that, when Linnen lies in Starch for any Time, it quickly wears out; and to avoid that Inconveniency, as soon as they have fouled it, they wash off the Starch with fair Water, and so keep the Linnen till they have occasion to wash it. This is sufficient Evidence of a considerable Acrimony in Starch, which is not so obvious to the Taste: For, if Starch wears out and corrodes Linnen, what Security have we of its Innocence in the Diseases of the Breast, in a Roughness of the Throat, in Dysenteries, and in Cases which require emollient Ingredients, as *Galen* speaks? Though *Pliny* * recommends it in these Diseases; yet he plainly shews, that he had some Suspicion of its Nature; *Starch*, says he, *makes the Eyes dull, and is an useless Burden to the Stomach, contrary to the vulgar Opinion.* Here we cannot but recommend the Contrivance of some Women, who, to avoid the corrosive Influence of Starch, mix Gum Arabic with it.

Doubtless, there are many Things in common Use which are taken to be inoffensive, because they injure only gradually and insensibly, till some Chance or other exposes their occult Malignity. Thus a great many Sorts of Aliment seem to digest easily in the Stomach, which leave peccant Juices behind them in the Veins. He, says *Avicenna*†, who digests unwholesome Things, must not de-

ceive

* Lib. 22. C. 5. H. n.

† 3. p. Do. 2. c. 6.

ceive himself upon the Success of the Digestion; for, after several Days, morbidic and pernicious Humours may be engendered from thence. And *Galen* * speaking of the Virtue of Food, says, *A peccant Juice gathers in our Veins after a long Time, when we take no Notice of it, and, putrifying afterwards upon the least Occasion, causes malignant Fevers.*

CHAP. XXIV.

Of the Diseases of STONE-CUTTERS.

WE come next to the Diseases of Stone-hewers, Statuaries, Stone-cutters, and that Sort of Workmen; for, in hewing Marble or Stones out of the Rock, in polishing and cutting them, they oftentimes suck in, by Inspiration, the sharp, rough and cornered small Splinters or Particles which fly off; so that they are usually troubled with a Cough, and some of them turn asthmatic and consumptive. Add to this the metallic Vapour exhaling from the Marble-Stones, which manifestly affects the Nostrils, and the Brain. Thus the Stone-cutters, who work upon the *Lapis Lydius*, are said to be so affected both in the Head and the Stomach, by the noxious Smell which constantly exhales from thence, that sometimes they are forced to vomit: And in dissecting the Corps of such Artificers, the Lungs have been found stuffed with little Stones. *Diemerbroec* † gives a curious Relation of several Stone-cutters who died asthmatic, and were opened by him; in whose Lungs he found

* 2. de Alim. fac. c. 6. † Lib. 2. Annot. c. 13.

found such Heaps of Sand, that in running the Knife through the pulmonary Vesicles, he thought he was cutting some sandy Body. He adds, that he was informed by a Master Stone-cutter, that in cutting Stones there rises such a subtile Dust, as is able to penetrate through Ox Bladders hung in the Shop, insomuch that, in the Space of one Year, he found a Handful of that Dust in the Cavity of the Bladder; and this very Dust he took to be the Cause of the Death of many unwary Workmen.

Our medicinal Histories afford many Instances of Stones found in the Stomachs, and Lungs of these Workmen; for which we can assign no other material Cause, but the dusty Particles taken in at the Mouth, and gradually gathered into a Heap. See upon this Subject *Olaus Borrichius*, of the Generation of Stones in the Microcosm. For we must not imagine that the Stones found in human Bodies are always bred of internal Causes, and petrifying Juices; sometimes the Misfortune is produced from abroad when the Viscera are innocent. *Wedelius* * observed a Stone from an external Cause in the Lungs of a Plasterer's Servant-maid, which he imputes to the Particles of Lime taken in at the Mouth.

The Butchers meet frequently with Stones in the Stomachs and Intestines of Oxen: which disproves the Opinion of *Aristotle* † who affirmed, that no Animal, besides Man, is affected with stony Concretions, unless we suppose he spoke only of the Stone in the Kidneys. *Scaliger* ‡ tells us of a Horse which voided hard stony Concretions, one of which he kept by him. And Authors are very large

* *Path. Dog. Sect. 2. C. 4.* † *Sect. 10. Prob. 4.*

‡ *Exer. 123.*

large upon the Virtues of the Stones of Horses, which they call *Hippoliti*, but with what Justice I shall not here determine. However, I think it is very probable, that the Stones, found in the Bodies of Horses and Oxen, and bred of the Dust and small Particles taken in at the Mouth in the Summer-time, when they are drawing Coaches and Carts upon dusty and dirty Roads, with their Tongues hanging out.

Purgatives and Emetics will be proper Remedies for the Work-men we now speak of, as being fit to expel these noxious Particles which adhere to the Stomach and Intestines, and might, in Time, grow into great Stones. And all possible Caution must be used, to avoid the sucking in of these minute Particles at the Mouth.

C H A P. XXV.

Of the Diseases of MASONS and BRICKLAYERS.

BRICKLAYERS and those who handle Lime are much in the same Condition; for, while they slake the quick Lime with pouring Water upon it, and have the slaked Lime always before them in building Walls or plaistering, they cannot but receive at their Mouths and Nostrils the subtile Particles which exhale from the Lime; and these render the Mouth, Throat and Lungs rough, and occasion an ill Habit of Body.

Lime being the most considerable of Alkali's, every Body is acquainted with its Virtues, and particularly those who use to live in Houses newly done

done over with Lime; for many violent Distempers have arisen from thence. *Hippocrates* * gives us the famous History of *Hermocrates*, who was seized with a mortal Fever upon lying by a new Wall. And though *Vallesius*, following *Galen's* Footsteps, alledges, That the new Wall had no relation to the Cause of the Disease; yet *Epiphanius Ferdinandus* † and *Mercurialis* ‡ are justly of the Opinion, That *Hippocrates* mentioned the new Wall with an Intention to point out the Cause of the Disease, there being nothing more dangerous than to live in a House newly built with Lime: Witness the sad Experience of many, who have thereupon died either of Suffocation, or of a Fever accompanied with a Deafness or Stumor, as happened to *Hermocrates*, who died on the 27th Day. My Lord *Verulam* says *Jovinian*, the Emperor, caught his Death by staying too long in a Room, the Walls whereof had been newly washed or done over with Lime. Nay, I can bring in myself for an Evidence; for, having ordered my Closet to be done over with Lime, and reckoning after six Months that it was safe enough to be in it, especially considering the Walls were only washed over, I was thereupon seized with an acute Fever which was very violent, and after that with a slow Fever which haunted me a long while, I have often observed, that in new Houses the Smell of Lime is manifestly perceived for many Years, especially in the Morning after the Windows have been shut all Night; for they are guilty of a gross Error, who think it safe to sleep in such Houses, because they perceive no Smell in the Day-time, when the Doors and Windows are all open.

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* 2. *Epid.* *Ægr.* 2.† *Hist.* 25.‡ *Hist.* 16.

It was a wise Edict which the *Romans* put forth, as *Pliny* * informs us, prohibiting new Houses to be inhabited. So great a Space of Time is required before Houses built with Lime can be inhabited with Safety ; but there is no occasion of such Caution if they be built with Parget or fine Plaister, for Parget dries speedily, and produces no ill Smell.

In short, the Bricklayers, and those who take the Lime out of the Kilns, and sell it, are sufficiently acquainted with the formidable Acrimony of Lime. *Wedelius*, as I intimated above, found a Stone in the Lungs of a Lime-maker's Maid, and attributes its Origin to the Particles of Lime taken in at the Mouth by Inspiration. *Amatus Lusitanus* † affirms, that most of those who deal in Lime die of Phthysics. In fine, the Nature of Lime is so largely handled, both by antient and modern Authors, that I need not insist upon it here. The Chemists, who draw a great many Remedies from Lime for external Use, affirm, that it contains a great deal of Alkali, and a little Acid. *Pliny* ‡, admiring the Nature of Lime, says, it is strange, that any thing should be kindled by Water, which was burnt before. But no Author has set the Nature of Lime in so clear a Light as *Tachenius* § ; for he allots it the chief Place among the Alkali's, and yet ascribes to it a certain Proportion of Acid ; which causes that Effervescence upon the Effusion of Water, by virtue of a particular Conflict between the Alkali and acid Parts. It is possessed of a fiery and very caustic Nature ; especially when it is new, and has not yet imbibed any Humidity from the Air ; and, upon this Consideration, it is no Wonder its fiery Substance should throw out
Effluvia

* Lib. 36. H. N. C. 23.

† Cent. 4. Cur. 41.

‡ Lib. 36. H. N. c. 26.

§ Hipp. Chem.

Effluvia of a very subtile Nature, which are highly offensive to Workmen.

Now I do not see how they can avoid these Effluvia, unless it be by covering their Mouths and Nostrils with a Napkin; especially when they are handling the Lime, and mixing it with Water, that thus the dusty Particles may be sucked in in a smaller Quantity. It will be of use to drink cold Water now and then, in order to allay the Heat and parched Driness of the Throat. Oil of sweet Almonds I have always found to be the very best Remedy in this Case; for it not only mitigates any Acrimony, but restrains the Effervescency of the Lime, which becomes hot, and produces an Effervescence with any other Fluid, but Oil. So that, if these Workmen are sick of the above-mentioned or any other Distempers, it will be of great Use, for adjusting the true Method of Cure, to have a particular Regard to the Injuries they suffer in the Way of their Business, and to the Parts which are thereby most exposed; for, according to *Hippocrates*, if any Part is affected before the Disease appears, there will the Disease fix, the Humours being always apt to fall upon the weaker Part.

C H A P. XXVI.

Of the Diseases of LAUNDRESSES and WASHER-WOMEN.

I Have often had Occasion to attend Laundresses who have been ill of various Disorders, contracted by the Nature of their Work. These Women,

men, being confined to moist Places, and their Hands and their Feet being always wet, turn cachectic; and, if they spend their Life-time in the Business, they come at last to a Dropsy; of which I have seen many Instances. They are likewise generally affected with a Deficiency of the Menfes, which subjects them to many Inconveniencies. And indeed it is no wonder their Menstruation should be disturbed; for we observe every Day, that Women under a menstrual Purgation are seized with a sudden Suppression, upon walking only bare Foot, or washing their Legs and Feet with cold Water: And much more must these Women undergo a Suppression, who make a Trade of keeping their Limbs wet. In fine, the moist Air in which they always breathe, and the constant Moisture which bedews their Body, is the Cause of all these Disorders: For the Pores of the Skin being by this Means obstructed, and Transpiration impaired, the whole Mass of Blood is thereupon tainted with gross Juices. And hence come Cachexies, andSuppressions of the Terms, with the other Disorders which accompany them.

But this is not the only Calamity which Washer-women are exposed to, for they are commonly thrown into a Cough, and soon after into a Shortness of Breath, by the smoaking Vapours, which arise from the boiling Lye; in which they sometimes put Lime instead of Ashes. *Horstius* * relates a Story of a Servant Maid, who, upon leaning down her Head over a Kettle full of Lye, was so affected with the Smoak, that she was seized with a violent Difficulty of Breathing, which lasted for seven Years, and at last stifled her. When the Corps was opened, the Lungs were found livid, with

* *Sepul. T. 1. L. 2. Sect. 1.*

with black Caruncles in the Bronchia, which stopped the Intercourse of the Air. These lixivial Fumes therefore, which the Laundresses cannot but suck in, are apt to vitiate the natural Structure of the Lungs, by over-drying them, and rendering them unfit for their Office.

Add to all this, that, in washing all sorts of foul Sheets and Linnen, some perhaps of pocky Persons, and others of Women under a menstrual Purgation, they receive at Mouth and Nostrils a strange Medley and Composition of noxious Steams, which pollute the Brain and animal Spirits. The Sharpness of Lye exposes them to Chops in their Hands, which are sometimes so deep and troublesome, as to be followed with an Inflammation and a Fever.

That these Women, who are so useful for making Things clean, may receive some Benefit from the Profession of Physic, and be instructed how to avoid the above-mentioned Disorders, I usually advise them, as soon as their Work is over, to throw off their wet Things, and put on dry Cloaths; in which point they are generally very careless: I advise them likewise to use Frictions to turn away their Faces as much as they can from the Smoak of the hot Lye; to anoint their Hands with Ointment of Roses, or Butter; to abstain from gross Food; and to observe a regular Diet. When they are actually seized with any Distempers, such as Fevers, Catarrhs, we must exhibit strong Purgatives to throw off the gross Humours. Antimonials will likewise be of use, unless the Disease be acute; as well as the aperient and anticalcheitic Medicines, which fortify the natural Heat

C H A P. XXVII.

*Of the Diseases of SIFTERS and ME-
TERS of Corn.*

ALL Grain, and especially Wheat, whether kept in Pits under Ground, as in *Tuscany*, or in Barns, as in the Countries upon the *Po*, have always a very small Powder mixed with them, I mean not only that which they gather upon the Barn Floor in threshing, but another worse sort of Dust, which Grain is apt to throw from itself upon long keeping. For the Seeds of Corn being replenished with a volatile Salt, insomuch that, if they are not well dried in the Sun before they are laid up, they heat mightily, and turn presently to a Powder; it cannot be but that some subtile Particles must fly off from the Husks which surround them, over and above the Powder and rotten Dust proceeding from the Consumption made by Moths, Worms, Mites, and their Excrements. Now there being a Necessity of sifting and meting Corn and other Grain, the Men employed in that Service are so plagued with this Powder or Dust, that, when the Work is done, they curse their Trade with a thousand Imprecations. The Throat, the Lungs, and the Eyes sustain no small Damage by it; for it stuffs and dries up the Throat; it lines the pulmonary Vessels with a dusty Matter which causes a dry and obstinate Cough; and it makes the Eyes red and watery. Hence it is, that almost all who live by that Trade are short-breathed, and cachectic, and seldom live to be old; nay, they are very apt to be seized with an Orthopnoea, and
at

at last with a Dropsy. Besides, this Powder has such a Sharpness in it, that it causes a violent Itching all over the Body.

When I consider how strange it is, that so pernicious a Powder should flow from such a benignant Grain as Wheat, I am tempted to suspect that this Powder has Worms in it unperceivable to the Senses; and that these Worms being put into Motion, and dispersed through the Air, in the Sifting and Measuring of the Corn, some of them stick to the Skin, and others enter in at the Mouth; and so cause that burning Heat and Itching which is observed both in the Throat and all over the Body. The famous *Lewenboeck* * informs us, that he discovered with his *Microscopes* some little Worms in Corn, which he calls not improperly *Lupi*; and indeed it seems no improbable Conjecture, that these Worms plague the Workmen we now speak of.

Nor is it less strange, that after Wheat has been kept long in a close Place, and particularly underground, it throws out such a noxious Exhalation, as is enough to kill any one who offers to set his Foot within the Place, till the Door has stood open for some Time, to let out the pernicious Air. For this Reason, *Zacchia* † is of the Opinion, that the People should not only be prohibited to make such Corn Pits, but be obliged even to pull down those which are built already; and says, it would contribute much to the Health and Safety of Cities, if these Pits were always digged in open Fields, and at large Distances from Peoples Houses. The Republic of *Lucca* have a wise Custom of taking the Corn out of their public Granaries every Year, in the Month of *August*, and exposing it for some Days to the Sun-Beams; after which they lay it up

* *Ar. c. nat. Ep. 71.*
4. 2. 7.

† *Quæst. Med. l. 5. T.*

up in the Granary again, and by this means preserve it for many Years, from Worms and Corruption, for the Benefit of the Public.

Theophrastus * puts the Question, why Wheat is less durable and more dusty than any other Grain? And imputes the Cause to the Barns, the Roofs of which are smoothed, or washed with Lime and Sand; for by that means he says the Wheat is more heated, and the dry, hot Powder of the Lime, augmenting this Heat, it rots and dissolves into Powder. *Scaliger*, commenting upon this Place, condemns the Reason offered by *Theophrastus*, because hot and dry Things are so far from disposing to Rottenness, that they rather preserve; and reckons, that Wheat becomes dusty, by being so heaped up as to be deprived of sufficient Transpiration. For, says he, *quod suffocatum est fervere ac putret*, any Thing that is choaked up heats and corrupts. But even this Reason is not satisfactory; for we find, by Experience, that, if the Corn be dry and well kept in the Barns, it keeps the longer for being in great Heaps, and never stirred. For my own Part, I should chuse to derive the Shortness of the Duration of Wheat, and its ready Mouldering into Dust, from the large Stock of volatile Salts it is possessed of, as well as from the Looseness of its Texture.

It were easy to put a great many curious Questions upon this Subject, but I dread to incur the Censure of Digression: It would be worth while to enquire, why Tares, which, in all Probability, are a degenerate Sort of Wheat, there being Instances of late Years of Wheat turned to Tares by a wet Spring, should keep above twenty Years

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without

* Lib. 4. c. 17. de Hist. Plant.

without spoiling? Whereas Wheat moulders into Powder, before it is four Years old. Whether be, that Tares are of a compacter and harder Substance than Wheat, for indeed, if we break Tare, we find it more solid than Wheat; and is upon the Account of this Solidity that Beans, Chickes, and Vetches are more durable; or whether the Worms and Moths have an Aversion to the Tares, by Reason of their Bitterness and Unpleasantness.

The Corns of these Countries being scorched and blasted in the late Years, there was a Necessity of washing the Wheat very carefully in large Vessels with fair Water, and then drying it in the Sun. On this Occasion I had an Opportunity to observe, that the Bread made of the Corn thus washed was Snow-white: For which Reason, the Corn be good and sound, I take it to be more usefless Piece of Labour to wash and dry the Corn before it goes to the Mill. The Workmen, employed in those Services, used to cover their Mouths and Nostrils with Handkerchiefs, to keep out the Dust, and to wash their Throats and Eyes often with cold Water; but all this Caution is not sufficient to indemnify them.

It would certainly be convenient for them to use Baths, to wash off the dusty Filth which sticks in the Skin along with the Sweat; but now that Baths are in disuse, the poor Workmen are deprived of that Benefit: For we must not think that these antient Builders of Cities and Compilers of Laws, were at all that Charge and Magnificence of Building, not only in great Cities, but even in lesser Towns, in making public Baths only to gratify the Luxury and Effeminacy of Women and idle Fellows, but likewise for the sake of Tradesmen and hard Workers, that they might have a

Opportunity of washing off the Filth of their Bodies, and refreshing their weary Limbs at a small Charge. Upon this Consideration we have reason to curse those who brought so noble a Constitution into Disrepute; and by their open Iniquity in promiscuous Baths, provoked Christian Piety to suppress them.

To conclude, I usually persuade such Workmen as are injured with the Dust of Corn or other Grain to make frequent Use of Ptisanes, Emulsions of Melon Seeds, Whey of Cow's Milk, and the Decoction of Mallows, for by these Means the Acrimony of the putrid Powder is diluted. When they are seized with Asthma's, and other Distempers mentioned above, we must prescribe such Remedies as are proper on such Occasion, not forgetting a particular Regard to the weaker Part, for fear the Disease should turn its whole Force upon that.

C H A P. XXVIII.

*Of the Diseases of those who PICK, or
HATCHEL, Flax, Hemp, and Silk.*

THE Necessity of Food and Rayment is the same now that it was in the Beginning of the World, when our first Parents were solicitous to cover their Nakedness, after they were divested of the divine Grace. Nature, our common Parent, has provided many Things to guard our Bodies from the Injuries of the Air, such as Wool, Flax, Hemp and Cotton, to which we may add Silk; though we may easily be without this last, as being invented rather to adorn than to cloath

the Bodies of Men and Women. Such is the Matter which our Cloaths are commonly made of, and those who labour in preparing and working upon these Commodities are thereby exposed to many small Inconveniences. All the World knows the Offensiveness of the steeping of Hemp and Flax in the Autumn, the noisome, and injurious Smell being perceived at a considerable Distance; and those who hatchel the Flax and Hemp, to prepare it from being spun and wove, afford frequent Instances of the Unwholsomeness of their Trade; from the e flies out of this Matter a foul, mischievous Powder, which entering the Lungs by the Mouth and Throat, causes continual Coughs, and gradually makes Way for an Asthma.

The Hemp-combers and Hatchelers generallly come hither in great Companies from the adjacent Borders of *France* and *Lombardy*, about the Beginning of Winter; for the People of our Country are not so well acquainted with that Part of the Manufacture. Now we always observe that these Persons are daubed over with Hemp dust, pale-faced, subject to Coughs, asthmatic and bleary eyed. The Winter being the Season allotted for this Business, they are obliged to work in close Places; and considering that the Hemp is very greasy and oily, upon that Occasion they cannot but take in at the Mouth these foul Particles which pollute the Spirits, and stuff up the Organs of Respiration. Besides the Hemp and Flax being steeped in stagnating and putrid Water, and daubed over with Clay to promote its readier Maceration under the Water, the Particles thus imbibed cannot but be virulent and unfriendly to Nature. These People complain, that they suffer more in hatcheling Flax than Hemp; and that perhaps, because the Powder or Dust of the former is subtiler, and thus making a brisker
Irrupa

ruption into the Organs of Respiration, provokes them more sensibly to throw off the Matter which injures them.

But worst of all is the Condition of those who comb the silk Cakes, which remain after the making of the Silk in order to spin it into Thread for several Uses, as being less chargeable than the Silk itself. For when the Bags of the silk-Worms, after being steeped in hot Water, are opened and disentangled by our Women, (that being the peculiar Province of the Women, as if Nature had provided Silk only for their Use) and wound upon Reels in small Threads there are still some grosser Threads or Filaments behind, which have Part of the Bodies of the Silk-worms mixed with them; and of these they make a Sort of Cakes, which they dry in the Sun, and give out to Workmen to have them drawn out into Threads with small Combs. Now the poor People who comb these Cakes are usually troubled with a vehement Cough, and a great Difficulty of Breathing, few of them live to old Age in that Way of Business. The Virulence which gives Rise to this Misfortune, is owing to the cadaverous Particles of the Silk-worms which are mixed with the Cakes. It is worth observing, that, while this little Insect is alive, and feeds upon the Mulberry-Leaves, its Excrements be thrown out in any Quantity, so as to stick any where till they putrify, they afterwards cast forth such a noisome Smell, when they are stirred, as incommodes all the Neighbourhood. And for this Reason some Cities prohibit the throwing of that Ordure into the public Streets, and enjoin the Persons concerned to carry it out of the Precincts of the City.

This Insect has a certain corrosive pernicious Acrimony which is offensive to the Lungs, as well

as the Palmer-worms, and a great many Insects of the like Nature, which, like Silk-worms, destroy whole Woods. I knew a whole Family in this City which got a good Livelihood by the silk Trade, but died miserably of Consumptions; the Physicians imputing the Cause of their Calamity to the Trade they were continually employed in.

I usually recommend to this Sort of Workmen a Milk-diet above all other Things, there being nothing which more effectually corrects a corrosive and putrid Acrimony. The Decoctions of Mal-lows, Violets, and Endive, or the depurated Juices of these Herbs, will likewise be of Use. But at last if they find their Affliction grows upon them, they must look out for another Trade; for it is a sordid Profit which is accompanied with the Destruction of Health.

C H A P. XXIX.

Of the Diseases of the GUIDES and SERVANTS who attend at Baths.

AMONG the public Edifices for which Rome was so famous, nothing made a more magnificent Show than the public Baths; the Largeness of which is still to be seen in the ruinous Monuments which are left of them. But Rome was not the only Place which was guilty of this Prodigality, for the other Cities and Villages, and even private Houses, boasted of costly Baths; insomuch that *Seneca*†, the severest Censor of Manners that ever was, exposes the Luxury of

of the Citizens of *Rome* in this Respect. Now Baths are in Disuse, and we had been left almost in the Dark, as to the Manner in which the Physicians themselves used them, as well as the very Terms, Structure, and many other remarkable Things relating to Baths, in the History if the ancient *Thermæ* had not been rescued from Darkness by *And. Bacchius* in his excellent Piece *de Thermis, Mercurialis* in his *Gymnastica*, and *Sigebertus de Jure Ant. Rom.* considering that the public Baths were built by the Emperors for the good of the common People, and that every Quarter of the Town was provided with them, to the end that both Men and Women might wash themselves every Day at a small Charge, which *Juvenal* * computes to be no more than a Quadrans, the Boys being washed for nothing, as the same Satyrift informs us.

Nec pueri credunt, nisi, qui nondum ære lavantur.

Upon this Consideration we must suppose there was a promiscuous Croud of Men and Women Servants who attended Night and Day in the Baths, and were called *Balneatores* or *Aquarioli*. Now these People, being obliged to live always in Water, and being always employed in rubbing the Sweat, Dirt and Ointments off the Bodies of those who came to bathe, sometimes in the hot Bath, sometimes in luke-warm Water, [and sometimes in the coldest of all, we may readily apprehend they were subject to various Diseases, such as Cachexies, Swellings in their Legs, Ulcers and Dropsies. What Service

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these

these People did to the Persons who bathed is plainly expressed in that Verse of *Lucilius*,

*Scabor, suppellor, desquammor, pumicor, ornor,
Expilor, pungor.*

Though Baths are now obsolete, either by Reason of the Disuse of the gymnastic Exercises themselves, for the sake of which Baths seem partly to have been built, or because we are now accustomed to wear Linnen next our Skins, whereas the Antients, as some imagine, wearing nothing but Woolen, were under a Necessity of cleansing their Bodies often; yet both *Rome* and several other populous Cities have still some Baths for the Use of sick People, and some do still frequent fresh Water-baths in the Summer-time for cleansing and adorning their Skin. Now-a-days it is usual for those who have cuticular Eruptions, such as the Scab, Itch, and venereal Blotches, to frequent the hot Baths and Bagnios, where the Bath-keepers wash them slightly with warm Water, and often apply scarifying Cupping-glasses all over their Body, by which means they draw forth large Quantities of Blood and then send them Home. This both the Patients and the Bath-keepers do without the Physician's Advice; but I leave themselves to consider whether they do it with safety or not: For my own share, I have known oftner than once some of these Adventurers, who by unadvisedly trying this Form of Cure upon themselves, having highly endangered their Lives, as being almost killed with the excessive Loss of Blood; for they sometimes will draw forth, with their Cupping-glasses, three or four Pounds of Blood: for it seems some have taken up an Opinion, that the Blood near the Skin is not by far so rich as that which is drawn from
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the larger Veins: As if the Blood drawn forth by Cupping-glasses, which cut the capillary Arteries, were not more florid than that of an opened Vein, which is always blacker. These Bath-keepers are generally pale, wan-coloured, bloated, and cachectic; and are sometimes seized with the very Diseases they pretend to cure in others.

To avoid the tedious Repetition of what we have said before, relating to the Cure of Chachexies and such other Diseases, I shall here forbear to make any Addition; for I reckon I do Justice to my Subject, if I do but point forth the Diseases which particular Tradesmen are usually subject to; for my Design is not to write whole Treatises of Diseases with the compleat Course of their Cure, and a long Train of Receipts, but only to furnish some Hints which may be of Use to facilitate the Cure of Tradesmen.

CHAP. XXX.

Of the Diseases of FISHERMEN and MARINERS.

THE Diseases of *Fishermen* and *Mariners* are also of an uncommon Nature; for since they live in a moist Air replenished with watery Vapours, and feed upon gross and heavy Food, they cannot but gather peccant Juices in their Veins, and contract stubborn Obstructions, which sometimes terminate in a Dropsy. *Pliny* *, treating of the Nature of Salt, calls the Bodies of Fishermen

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Horny

Horny, (*cornea*) which Epithet I suppose he used, because the Bodies of Fishermen are hardened like Horn, by being exposed to the Sun and saline Vapours; for Salt has a drying Property, as we see in salt Meat: And it is observable, especially in the Summer-time, that Fishermen have a Skin as hard as an Elephant's Hide. *Riverius* † has an Observation of a certain Fisher-woman who had a violent Itch and Ring-worm all over her Body.

Fishermen and Seamen used to have ugly Ulcers in their Legs; and to be extended all over their Bodies. In general, all the Disorders they labour under are of a scorbutic Nature; as the learned *Wedelius* has well observed of the Inhabitants of the *Baltick* Shore, and *Glauber*, in his *Treatise de Consolatione Navigantium*. They are likewise troubled with a Costiveness, especially at Sea, tho' they eat a great deal more than they who live on Shoar, the Cause of which *Helmont* ‡ imputes to the Air, as being impregnated with saline Vapours, which serve at once to whet the Appetite and dissipate the Belly, as well as to the fluctuating Motion, which brings them continually into fresh Air, and so spurs on the Fermentation of the Blood. Accordingly we find, that Clysters of Sea-water provoke to Stool very forcibly, but they leave a Costiveness behind them. To this purpose is that memorable Place of *Hippocrates* *, censuring the Mistake of those who take salt Waters to be laxative, when at the same Time they are absolutely of a contrary Nature; and this may serve to shew those, who prescribe Clysters with much Salt in costive Cases, how far they depart from the Sentiments of their divine Predecessor. *Hippocrates* took likewise notice

† *Obs. comm. obs.* 39. *Path. med. Sect.* 1. c. 8.

‡ *Blas. Hum.* N 36.

* *De Aer. Aq. et Loc.* n. 16.

notice of the Ulcers, to which Fishermen are subject, and orders them to be washed with Sea-water. It is true, some may think that Sea-Water is an improper Fomentation for such Ulcers, because its biting, pungent Nature irritates and provokes a Flux of Humours; but *Martianus*, in his Comment upon this Place, justifies the Prescription of *Hippocrates* very judiciously, because the Ulcers of Fishermen that live in maritime Places, are squalid and dry, and by the Application of irritating Things, may be brought to Suppuration, without which it is impossible to cure them. *Galen* || made the same Observation, that the Ulcers of Fishermen are dry and fordid, as if they were pickled with Salt: But after all, we must think that the Ulcers of such Fishermen as fish in fresh Water and Lakes, are of a different Nature from those of the Fishermen who are used to the Sea; for they abound with too much Humidity, and are to be cured after a different Manner, by such drying Things as are accompanied with no pungent Sharpness: For *Hippocrates* † tells us, that a dry Ulcer is more likely to be cured than a wet one.

Upon this Occasion I cannot but take Notice of that divine Caution of *Hippocrates*, who speaking in the Place above quoted, of the Use of Sea-Water in the Ulcers of Fishermen, says, *If you use it sparingly it irritates and provokes, but if you use it liberally it does good*: So that when we have Occasion for sharp Medicaments, as in fordid Ulcers, for taking off the corrupt Matter and putrified Flesh, we ought to use them in a convenient Quantity till the peccant Matter is consumed, and the Ulcer dried: For this I perceive is a frequent Error in

† *De Humid. usu*, n. 7.

|| *De Simp. Med. fac.*

1. c. 7.

† *De Ulcer.*

in Surgeons, who use Corrosives and Caustics sparingly, and so do more Harm than Good, by reason of the disproportionable Quantity of the Remedy : Just as in the Case of Purgatives, of which too scanty a Dose irritates, but does not carry off the peccant Humours ; as it happened to a young Man mentioned by *Hippocrates**, who, upon drinking a weak Infusion of Hellebore, died four Days after without any Purgation.

It appears therefore, that the Diseases of Fishermen and Sea-faring Men require a particular Method of Cure ; for their Food being so far different from that of the other Inhabitants of the Earth, and constantly exposed to all the Injuries of the Weather, as well as to the continual Alarms of Danger, cannot but be liable to violent and stubborn Diseases. *Thomas Bartholine* in *Bonetus's Medicina Septentrionalis* † affirms that Medicines must be given to Sea-faring-men in a triple Proportion to the common Dose of those who live on Shoar, or else they will not produce the desired Effect. And this Caution he extends not only to Purgatives, but to Diaphoretics, Diuretics and all other Medicines. *Joannes de Vigo* *, Surgeon to Pope *Julius II.* has a particular Chapter of the Fevers of Sailors : And indeed considering that Sailors are forced to feed upon gross Food, salt Meat half rotten, Water, and Bread half Worm-eaten, we cannot but conclude that their Bodies are full of bad Juices, and disposed to malignant Fevers, and therefore we ought to exhibit to them the more generous Sort of Remedies.

C H A P.

* 5. *Epit.* n. 16. † *Tom.* i. l. 8. p. 4. Sect. 1.
c. 9. * *Lib.* 9. c. 4. de *Addit.*

C H A P. XXI.

*Of the Diseases of those who work in
SALT-PITS.*

TIS a just and beautiful Saying of *Pliny* †, that nothing is more useful than the Sun and Salt; to which we may add, that indeed nothing is more necessary. The divine Architect, foreseeing the Necessity of Salt for the Use of Mankind, did, in the Infancy of the Creation, constitute the Sea the Store-House and the Dispenser of that Substance from whence it might be conveyed, through subterranean Passages, to the highest Mountains, and there appear in Springs of Salt-water. Hence we have a fossile and native Salt in various Places, by virtue of the Salt gathering into concrete Lumps as the salt Water passes along; unless we should imagine, that God made Mountains of Salt originally in the very Fabric of the World. Besides that, we have an artificial Salt which is more commonly used, and is made of the Sea-water, thrown by the Tide into certain Ditches and Pits, where it is dried up in the Summer-time by the Beams of the Sun, leaving a copious Sediment of Salt at the Bottom.

The City of *Cervia*, which is seated on the *Adriatic* Shoar, and was once immediately subject to the *Ravennatian* Church, furnishes these Countries, and most of *Italy*, with great Quantities of this Bay-salt: And indeed I would willingly have paid

† Lib. 31. c. 9. H. N.

paid a Visit to that Place, but my Business would not permit me. However, I took care to procure due Information by Letters, which I owe to the Humanity of the famous *Joseph Lanzonius*, Professor of Physic: But his Letters did not arrive soon enough to enable me to rank this Chapter among the Artificers who work upon Minerals. He informed me, that, in that City and the Salt-pits belonging to it, the Air is so impregnated with corrosive Spirits, as to corrode Iron, which thereupon softens like Wax and moulders into Powder; that all the Workmen are chachectic, dropsical, and troubled with sordid Wounds in their Legs; that they eat and drink prodigiously, and their Appetite is in a manner never satisfied; that sudden Deaths happen frequently among them; that the Method of Cure is various, there being divers Physicians frequently sent for from various Places; that there is very little Place for any sort of Remedies, especially in their acute Diseases, which are always accompanied with lethargic Symptoms; and that by Reason of the vast Quantity, or rather the very Mountains of Salt, which *Leander Albertus* says, he often beheld with Admiration. It is probable, that great Quantities of the Spirit of the Salt are elevated into the Air, which they overstock with a corrosive Acid which corrodes Iron, and at the same time makes the Blood of the Workmen highly acid; which gives Rise to Cachexies, Dropsies, and Ulcers of the Limbs, these being naturally produced by a luxuriant Acid.

Their boundless and insatiable Appetite may be reasonably imputed to the same acid Spirit of the Salt which whets the Ferment of the Stomach. The very Ancients knew, that the canine Hunger which *Hippocrates** says is cured by Wine,

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proceeds from a preternatural Acid in the Stomach ; and with that View they perscribed in this Case generous and strong Wine, fat Eatables, and whatever is very oleous, as *Galen* has it in his Comment upon the last quoted Aphorism of *Hippocrates* ; these Things being apt to break and subdue, the acid Ferment of the Stomach, just as acid Spirits are dulcified with Spirit of Wine. Their drinking much may likewise be ascribed to the saline Exhalations, or to the serous Floods which abound in their Body and dispose them to a Dropsy ; for dropfical Persons are perpetually thirsty.

I cannot pretend to determine whither these violent Disorders are owing only to the Spirit of the Salt imbibed by the Workmen along with the Air in Inspiration, or likewise to other Causes, such as the Unwholesomeness of the Air, which that City is commonly charged with. I am informed that this City is almost desolate for want of Inhabitants ; and for that Reason the Popes have made it a Place of Liberty and Privileges, and a Sanctuary for Debtors and Exiles, who generally repair thither to pay their last Tribute to Nature, when they cannot pay their Debts. It is certain that in many other Places, where Salt is made, the Workmen are not by far so much injured ; so that the sole Exhalation of the acid Spirit cannot be the only Thing which is in the Fault. We all know that *Venice*, the most populous City of *Italy*, and the Queen of the *Adriatic* Sea, has a wholesome Air, notwithstanding it is encompassed with Exhalations from the Sea : And for further Satisfaction upon that Head, you may consult the excellent Treatise of *Lodovicus Testi*, Physician at *Venice*. In the Country of *Piacenza* there are Pits or Wells of Salt-water, from the Decoction of which they
make

make Salt, and form it into Lumps with a small Quantity of Cow's Blood: And this Manufacture being one of the principal Branches of that Duke's Revenues, a great many Workmen are imployed about it, and yet are not exposed to such violent Disorders.

It is not improbable that the making of Salt is so laborious a Work, that not only the Matter upon which they work, but the very Fatigue and Labour they undergo may contribute to their Calamity. The Toil and Laboriousness of this Work is described at large by *Georgius Agricola* *, who not only sets down various Artifices and Contrivances for boiling the Salt-water, or conveying it into the Pits or Yards, but gives a Description of the Workmen, who by reason of the excessive Heat have only Straw Caps upon their Heads, and little Breeches to cover their Nakedness, the rest of their Bodies being all over naked; so that Part of their Misery is chiefly attributed to the Violence of the Fire, the scorching Heat of the Sun, and their other hard Work.

However I cannot deny, but that the very Manufacture they work upon is highly prejudicial to their Health: I observe, that in our Salt Ware-houses the Walls are half eaten through, so as to leave Chinks between the Bricks; which I impute to the penetrating Spirit of the Sea-salt which attacks the Alkali of the Lime and destroys it; just as in the mixing of Cow's Blood with the *Piacenza* Salt, the Acid of Salt seizes upon the Alkali of Blood, and makes it run into Grains or seperated Pieces. Besides it is observable, that those who attend in the Ware-houses, or Shops, to sell the Salt

* Lib. 12. *De Re Met.*

Salt, are commonly wan-coloured, and apt to be unhealthy.

It is certain, the Condition of these Tradesmen is absolutely miserable ; for the Salt especially that of *Italy*, being commonly made in maritime Places, where the Sea-water stagnates in Ditches and Inclosures, and so pollutes the Air that few Physicians care to practise in such Places ; the poor Wretches are often swept off with acute Diseases, for want of seasonable Remedies ; or else fall into lingering or consumptive Diseases. However such Physicians as are called thither ought to be very cautious of Bleeding ; for the Blood of these People, being dissolved by the saline Exhalations, the opening of a Vein may readily occasion a sinking of the Spirits, and add Strength to the Disease. Purgatives, especially those of the strongest Kind, seem to be more proper, upon the Account that they carry off the Redundance of the Serum ; and the Alkali, with which most Purgatives are stocked, qualifies the acid Disposition of the Humours. Generous Wines, Spices, all Ingredients possessed of a volatile Salt, Tobacco chewed, Decoctions of Tobacco leaves, and in general, whatever is apt to controul the Acidity of the Blood, are proper on this Occasion. The Method of dulcifying Spirit of Salt with rectified Spirit of Wine, may serve as a general Rule to point out the Nature of the Remedies here required.

C H A P. XXXII.

Of the Diseases of such who stand when they are at Work.

IN the foregoing Chapters having viewed the Condition of the Tradesmen, whose Health is impaired by the malignant Quality of the Matter or Commodity upon which they work, we now come to the others whose Health is affected by other Causes, such as particular Postures of the Body, and inconvenient Motions requisite in the Way of their Business. Among such some stand all Day, some sit, some have their Faces bended to the Ground, some sit double with their Backs bended, some are obliged to run, others to ride, and others again to various Sorts of Exercises. The first we here deal with are those who stand all Day long, such as Carpenters, Coopers, Sawers, Ingravers, Blacksmiths, Bricklayers, and many others, whom for Brevity's sake, I forbear to name. In general, those who stand at work are subject chiefly to Varices, or Swellings in the Veins; for the tonic Motion of the Muscles retards the Course of the Blood, upon which it stagnates in the Veins and Valves of the Legs. How much the Distention of the Muscles contributes to retard the natural Motion of the Blood is apparent to any one who does but feel his own Pulse when his Arm is stretched out; for then he'll find it very low and small. In the Case now before us, the muscular Fibres of the Legs and the Loins being stretched out, the Arteries which run downwards are thereby pressed and straitned; so that their Cavity being narrower, they don't push forward the Blood with that

that Force which takes place in walking, where the alternate Motion of the Muscles conspires to assist them: Hence the Blood, that returns from the Arteries into the Veins, does not receive the necessary Force from the Impulse of the Arteries to make it rise in a perpendicular Line; so that, for want of the due Impulse to back it, it stops and produces Varices in the Legs. Accordingly we find *Juvenal* * speaking of the *Haruspices*, who were obliged to stand long in viewing the Intrails, says,

Varicosus fiet Haruspex.

In ancient Times, to keep long in a standing Posture, and that so firm as not to be easily moved, was a Sort of Exercise peculiar to the *Roman Militia*, as the learned *Mercurialis* || informs us in his *Gymnastica*; where he adds, by a very probable Conjecture, that *Caius Marius* got Varices in his Legs by standing in the Field of Battle, as it became a brave General to do. We learn from *Suetonius*, that *Vespasian* used to say, an Emperor ought to die standing: And it is certain, that *Caius Marius* was so much accustomed to standing, that he stood upon one Leg while the Varices were cut in the other. *Virgil* †, describes *Æneas* in a standing Posture, while *Japis* the Physician was endeavouring to take an Arrow out of his Wound.

*Stabat acerba fremens ingentem nexus in hastam
Æneas.*

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* Sat. 6.

|| Lib. 6. c. 1.

† *Æneid*. l. 12.

But the most remarkable Story of this Nature is what *A. Gellius* relates of *Socrates*, that he used to stand Night and Day, from Sun-rise to Sun-rise in the very same Posture, unmoveable, with his Face and Eyes always pointed to the same Place, as being lost in profound Thought, the Mind retiring, as it were, from the Body.

Much standing used likewise to produce Ulcers in the Legs, a Weakness in the Joints, nephritic Pains, and a Pissing of Blood. I have observed a great many Servants who attend at the Courts of Princes complaining of a Pain in the Kidneys; for which they can assign no other Cause but the continual standing; for when the Body is in an erect Posture, the Fibres of the Muscles of the Loins must needs be bent, which necessarily affects the Kidneys; so that the Blood does not circulate so freely, nor the Secretion of the Serum proceed so regularly as it ought to do.

A weak Stomach is likewise the Companion of those who stand at Work, for in a standing Posture the Stomach hangs, whereas when we sit or bend our Bodies it rests upon the Intestines, and for this Reason, when we are seized with any Disorder in the Stomach, we naturally bend the whole Body forward, and draw up our Knees and Legs. The learned *Bacon* observes*, that the Galley-slaves are fat and well-complexioned, notwithstanding the Misery of their Condition; because they row in a sitting Posture, and exercise their Limbs more than the Abdomen and the Stomach. The same Observation holds of Weavers, who exercise their Hands and their Feet at once; for the moving of the external Parts and leaving the internal at rest, renders our Bodies fatter and lustier than standing and walking, which are apt to tire us.

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It is worth the while to enquire how it comes to pass, that standing for a little while tires us more than either walking or running for a longer Space of Time: The common Opinion is, that it is owing to the tonic Motion of all the antagonist Muscles whether extended or bended. But this Opinion is confuted by the learned *Borelli**, who demonstrates, that the Arm is stretched out without the Action of the Flexores, or bending Muscles, only by the active Force of the Extenders; and that the Case is the same in the erected Posture of the Body, where all the Benders lie by, and only the Extenders are employed to act. This ingenious Author imputes the Cause of our being so soon tired with Standing to the continual and uninterrupted Action of the same Muscles; for, he says, Nature delights in alternate and interpolated Actions; and for that Reason walking does not tire us so much; and those who stand alternately upon one Foot at a Time, are less tired than if they stood upon both at once. This Tendency of Nature we may plainly perceive in the Beasts, particularly in Pullets, who sometimes stand upon one Foot while they hold up and save the other; and in Asses, who, upon long standing, are observed to rest one of their hinder Feet in the Stirrup. This alternate Succession of Action is agreeable to Nature, not only in the Motion of the Body, but in almost all the natural Functions: For if we look steadily upon one Object, if we listen with our Ears to one Sound, if the same Meat be often served up at Table, if our Nostrils be long exposed to the same Smells, we are uneasy; so much does Nature delight in Vicissitude and Change. Accordingly we see the *Jews*, when they were sed

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* *De Mot. Anim. F. op. 231.*

with Heavenly Manna in the Wilderness, began to long for the *Ægyptian* Garlic and Onions. Thus *Horace*, in his *Art of Poetry*, expresses himself in the following beautiful Manner.

Ridetur Chorda, qui semper oberrat eadem.

Upon the whole those Tradesmen, who are obliged to stand when they are at work, ought to shift their standing Posture as often as they can, either by sitting now and then, or walking or moving the Body any other Way: They will find Benefit from whatever is apt to remove Lassitude, and restore the Spring of the Parts, such as moist Frixions, Fomentations and Baths. As for the Cure of the Varices, the Ulcers of the Kidneys, Ruptures and other Disorders, consult the Practitioners who have wrote upon such Diseases.

C H A P. XXXIII.

Of the Diseases of such Tradesmen as SIT MUCH.

THE Tradesmen who lead a sedentary Life, such as Shoe-makers and Taylors, are likewise exposed to peculiar Diseases. Both these, and all other Artificers, whether Men or Women, who work in a sitting Posture, are, by the sedentary and bending Posture of their Body, so formed, as to have their Backs bended or bowed, with wry Necks, or their Heads hanging down as if they were looking for somewhat on the Ground: They
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are not so much hump-backed as roundish about the Shoulders, the Vertebrae of the Back being equally protuberant: Since they sit crooked to do their Business, the Ligaments of the Vertebrae are distracted in the external Part, contract a Callosity, and so cannot return to their natural Posture. *Wedelius* * mentions a Shoe-maker who was thus crook-backed to an incurable Degree, because he had neglected it in his Youth.

The Taylors, being obliged to clap their Feet to their Thighs when they work, are often troubled with a Numbness in the Legs, a Lameness, and the Sciatica. Certainly it is worth while to observe the Societies of Taylors and Shoe-makers, when they make their public Processions, two by two, upon Festival Occasions; or, when they march at the Funerals of those of their Number, for they make a crooked hump-backed lame Figure, wrigling sometimes to one Side, sometimes to another, as if they were set to act such a Part on Purpose.

The sedentary Trades-people use likewise to be scabby and ill-complexioned, especially Taylors, and the Needle-women who work at Home Night and Day; for, if the Body is not moved, the Blood grows foul, its Excrements stick in the Skin, and the whole Habit of the Body is tainted. They are likewise more soluble in the Body than those who follow Exercise; for, as *Hippocrates* † informs us, the Excrements of the latter are scanty, yellow and hard: And the same Author ‡ describes the Case of one *Clectimus* a Shoe-maker, who had a Swelling in the Region of the Liver, and a Laxity of the Belly; as well as the Case of another || who voided

* *Path. Dogm. Sc. 1. c. 1.*

† *Prorr. re.*

‡ 7. *Epid. 30.*

|| 4. *Epid. n. 9.*

voided Blood at the Nose, and then had a moderate Evacuation by Stool.

In fine, their sedentary Life exposes them to an ill Habit of Body, and a manifold Redundancy of vicious Humours. But all sitting Tradesmen are not equally exposed; for Potters, Weavers, and others who exercise their Hands and Feet, and the whole Body, are of a healthier Constitution; the Impurities of their Blood being more easily dissolved by virtue of that Motion. The Weavers indeed use to complain of a Pain in the Loins, which proceeds from the violent Motion and great Force which they are obliged to use in weaving coarse Cloath, and that which is made of Hemp: And this Piece of Service being generally allotted to Women, we find, that those who are big-bellied are very apt to miscarry; for the Force of that Motion jogs the *Fœtus*, especially if the Women live in a City or Town; your Country Women indeed will bear a great deal without receiving any Injury. However, it is observable, that not only Weavers, but all sedentary Artificers are subject to a Pain in their Loins; pursuant to that noted Saying of *Plautus*,

Lumbi sedendo oculi spectando dolent.

I cannot see what preservatory Cautions can be given to these Tradesmen, as long as the occasional Cause is in Force, and Necessity obliges them to work at their Trade: Purging indeed in Spring and Fall will prevent the Collection of so great a Redundance of Humours, so that they will not be so often sick. They must be sure to exercise their Bodies on Holidays, and repair the Damage of many Days sitting by the Exercise of some. When they are actually confined to their Beds either by
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the above-mentioned or any other Disorders, we must endeavour to evacuate the Humours, and withal have a careful Eye upon the Parts which are most exposed in the Way of their Business; for the Humours will be apt to fall upon these. To this purpose is that memorable Place of *Hippocrates*, where he describes two Men who had Swellings in their Hands; for both of them had been troubled with a Cough, and when the Defluxion came upon the Hand the Cough ceased: And he adds, that those who had occasion to ride or travel had a Defluxion upon the Loins and Thighs. So readily do the Humours repair to those Parts that through violent Exercise have lost their Strength and Firmness.

C H A P. XXXIV.

Of the Diseases of the Jews.

THE *Jews* are a Nation not to be paralleled upon the Face of the Earth; they are dispersed through all Countries, and have no fixed Habitation any where; they are an idle People, and yet deal very much in the Way of Commerce; they neither plow, nor harrow, nor sow, and yet reap plentiful Crops. However, this unaccountable Nation is liable to various Diseases, which are owing not to their Extraction, as the Vulgar think, nor yet to their Way of Feeding, but to the Arts and Trades which they practise. A natural and national Stink is but falsely ascribed to the *Jews*; for that observed among the ordinary People is only

ly owing to the Necessity of their Circumstances ; and we cannot but conclude that, when they lived in the Royal City of *Jerusalem*, they were a clean-scented People.

All the *Jews*, and particularly the vulgar Sort, which make much the greatest Number, are accustomed to sedentary and standing Trades. Sewing and fitting up old Cloaths is an Employment they always follow ; and their Women, whether Maids or married Persons, gain their Livelihood by their Needle more than any other Women whatsoever ; for they neither card, nor weave, nor mind any other Piece of Housewifery besides sewing ; and in that indeed they are so expert, that they will patch up Woollen, and Silk, and any other Sort of Garments, so as to leave no Appearance of a Seam. This the *Romans* call *Rinacchiare* ; and the *Jews* find their Account in it, for they palm such Garments made of a great many Pieces upon the ignorant Mob, and so gain a great deal of Money.

This Employment strains the Eyes very much ; for the *Jewish* Women sit at it not only all Day, but even late at Night by a very faint Light, such as the Funeral Lamps generally cast ; and thus they not only undergo all the Disadvantages of a sedentary Life, but, in Process of Time, contract such a Weakness in their Sight, that, by that Time they are forty Years of Age, they are short-sighted. Add to this, that in most Cities the *Jews* live in narrow Lanes, and their Women have a Custom of standing at the Windows in all Seasons of the Year to take the Advantage of the Light ; by which means it comes to pass, that they suffer various Disorders in the Head, such as Head-achs, Pains of the Ears and Teeth, a dull Heaviness, a Hoarseness, and Blearedness of the Eyes : In fine, many

many of them, especially of the ordinary Sort, are deaf, blear-eyed, toothless, hump-backed, and lame.

As for the Men, they either sit in their Shops all Day long patching up their old Rags, or stand waiting to catch Customers; and almost all of them are cachectic, melancholy, surly, and generally scabby; for there are but few, even of the richer *Jews*, who have not some Tincture of the Itch; so that this Foulness seems to be a natural Disease, and the Remains of the Elephantiasis which was formerly so familiar to their Nation.

They are likewise accustomed, especially in *Italy*, to mend the Flock Beds, by beating the Wool with Rods upon Hurdles made of Twigs, after these Beds have been lain upon for some Years, and hardened by Use. By this Means they earn a great deal of Money; but in beating and working this old Wool which has been so often bepissed and dawbed with Filth, they suck in at the Mouth a great deal of nasty Dust, which turns their Stomachs, and disposes them to a violent Cough, and a Difficulty of Breathing. I have known a great many *Jews*, who, by following this Exercise, have reduced themselves to an incurable Consumption; as they owned themselves. The pernicious Powder, or Dust, which does all this Mischief does not proceed so much from the old Wool as from the Impurities of People's Bodies lodged in it. In this Country we have a Custom, when any one is buried out of a Family, of giving out to the Washer-women the Sheets and Linnen, or any other Thing which the deceased Person made use of, and of sending for a *Jew* to air, and beat, and cleanse the Flock Bed; so that the *Jews* are in the same Condition with the Undertakers of Funerals;

since they cannot do their Office without sucking in some dead Steams, and injuring their Lungs.

All the World knows that our writing Paper is made of old Linnen and Canvass-rags softened in Water, putrified and beat ; and that, by a very ingenious and admirable Sort of Art, unknown to the Antients, who wrote upon waxed Tables and Skins, or Paper brought from *Ægypt*. Now this covetous People (the *Jews*) have a Custom of crying these Rags up and down the Streets, and so buy them up at a small Purchase, till they have picked up great Heaps to be sold to the Paper Merchants. When they bring their Loads home to their Houses, they turn up and examine them every Way to see there be no Woollen or Silk among them, for that they throw away, as being of no Use in the Manufacture of Paper (though we know there is China Paper made of Silk ;) then they pile up great Heaps of nasty Rags in their Shops or Ware-houses, and in earnest, it is not credible what an ugly Stench rises, as often as they stir these Heaps in filling great Sacks to be sent to the Paper Men.

By this Means they become subject to Coughs, Difficulty of Breathing, loathing of Food and Vertigo's ; for what can be imagined more nasty and abominable than a joint Heap of all the Filth which comes from Men, and Women, and dead Corps ? So that it is a pitiful as well as a horrible Spectacle, to see Carts loaded with these Remains of Poverty and human Misery.

We are therefore to see what Service we can do these People, in preventing the Detriment which thus accrues to their Health from the Trades they follow. As for those who are taken up in Sewing, whether Men or Women, I reckon nothing more conducive than the Exercise of their Bodies,

Bodies, which contributes most especially to remove Obstructions, to fortify the natural Heat, to promote Transpiration, and take off scabby Eruptions. So I would advise the Women, especially those who follow the sewing Trade so close, to spare some Hours now and then for the sake of their Healths; and to ease both their Hands and their Eyes, for fear the Loss of their Eyes should afterwards oblige them to an idle and a miserable Life. Frequent Purgation is useful to prevent the Collection of so great a Redundance of Humours; but the Purgatives must be of the gentler Sort, such as the Lenitive Electuary, Pills of Aloes, Rhubarb, and the like. I do not find Bleeding to be so proper; for their Blood being dispirited and low, their Strength is easily impaired: Besides, they have a firm Opinion (which is not far removed from Truth) that nothing is so pernicious to weak Eyes as Bleeding. Cauteries upon the Arms and Thighs they bear easily, and find them beneficial, these being the proper Emissaries for the gradual Evacuation of the Impurities of the Body.

As for those who are imployed in gathering old Rags and cleansing Beds, they require stronger Remedies, and such as will evacuate the sordid Particles by Stool, or rather by Vomiting, this being the more expeditious Way; so that Antimonials will be very proper; and likewise Alexipharmical Medicines, such as Vinegar of Treacle, Treacle itself, and the like. When they are at work they ought to wash their Mouth now and then with Vinegar and Water, and cover their Face and Nostrils, to prevent the Ingress of the volatile Atoms.

C H A P. XXXV.

Of the Diseases of COURIERS, or RUNNERS.

IN antient Times Running was called among the Number of the Gymnastic Exercises; and in the public Schools the Children, whether Free-born or Slaves, were taught by their Masters to run; for at the public Games and Shews, they used to run Races, the Victor being rewarded with a Crown.

By this Sort of Exercise Men became fitter for waging War; that is, as *Vegetius* has it for running in with greater Force upon their Enemies, for possessing advantageous Posts with greater Expedition, or preventing their Enemies from doing the like, and for overtaking their Enemies upon a Pursuit. Upon these Accounts the *Turks* do still keep up the laudable Custom of inuring their Soldiers to run fast. *Plato* * was for accustoming the Women to the Exercise of Running, to the end they might be useful in performing military Offices, and defending their Country. *Suetonius* informs us, that not only the Princes and the Emperours, but even the noble *Romans* had their Cursors, or Runners, whom they called *Pueri, à Pedibus*. But, in the Age we now live in, such Exercises are in disuse; only the Princes and Persons of Quality keep Footmen to run before their Coaches and carry Messages.

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* 2. De Leg.

In short, this Sort of Men are subject to various Diseases : Ruptures and Asthma's are common among them ; and the same thing is observed of Race-Horses : Frequently they are subject to a spitting of Blood. Hence *Acanthio* in *Plautus*, complaining to his Master, that he was almost killed with Running, says * :

Tua causa rupi Ramicem, jamdudum sputo sanguinem.

And his Master advised him to take *Ægyptian* Rosin made up with Honey, for Cure ; so that we see resinous Things were recommended, in the Diseases of the Breasts, by the Ancients. They are likewise very lean and slender, the spirituous Parts of the Blood and the nutritious Lymph being exhausted along with the Sweat. Generally speaking they are subject to the Diseases of the Head ; which made *Aristotle* † put the Question, how it came to pass, that fast Running caused Diseases of the Head, since Motion uses to throw the Excrements downwards. The true Solution of which is, that in running very fast the Vesicles of the Lungs are too much inflated and heaved up, which puts some Stop to the Reflux of the Blood in the *Vena Cava* above the Heart, by cramping the Freedom of its Ingress into the pneumonic Vessels, the Consequence of which is, that the Blood stagnates in the Head, and so excites various Diseases, which are not observed upon running moderately, which is rather apt to promote the Descent of the Humours to the lower Parts.

Those who run much are often liable to acute and violent Diseases of the Breast, such as Pleurifies

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* *Menoch. Act. 1.*

† *Seet. 5. Prob. 9.*

and Peripneumonies ; for being cloathed very thin and light, and withal exposed to Wind and Weather, when they happen to be all in a Sweat, and then cool of a sudden, the Obstruction of the Pores cannot but cause pernicious Disorders, especially in the Organs of Respiration, which, in running, are heated with frequent Action. Sometimes they void bloody Urine, some small Vein being broke in the Kidneys ; and for that Reason *Celsus* * condemns running in the Disorders of the Kidneys. They are very apt to be troubled with Ruptures ; for the forcible keeping in of the Air breaks or dissolves the *Peritonæum* ; and upon that Account *Paulus Aegineta* † advises those who are troubled with Buboes and Ruptures to beware of running.

It is certain, that, in running, the Inspiration exceeds the Expiration ; for the Strength cannot hold out for continuing the Race, unless the Air be pened in within the Cavity of the Breast : And accordingly we find, that, when the Muscles are relaxed by much Expiration, our Strength sinks ; but, when the Lungs are distended and the Breast heaved up, the Spring of the Muscles and Fibres of the whole Body is firm and tight. But if we run long and with too great Violence, the Lungs being full of Air, their Vesicles are blown up, and the Motion of the Blood, from the Right Ventricle of the Heart, through the pneumatic Vessels, is retarded, by virtue of the Pressure and Constriction of the Ducts ; and this gives rise to Ruptures of the Vessels, and a Spitting of Blood, as *Galen* ‖ has likewise observed. The same Cause gives rise to asthmatic Fits, both primary and secondary, or

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* Lib. 8. c. 4.
Com. 2. et. 7. Meth.

† Lib. 3. c. 53.

‖ 6. Epid.

convulsive ; for the sharp Serum, being thrown upon the intercostal Muscles, forces them to a violent Contraction. Hence it is, that now-a-days those who make a Trade of Running are sent to the publick Hospitals at forty Years of Age, as being then past their Labour. In my Opinion, our Footmen, who usually run before the Coaches of Persons of Quality, seem to be in the same Condition with those described by *Ælius Spartanus*, in his Life of the Emperor *Verus*, who tacked Wings to the Shoulders of his running Footmen, and called them by the various Names of the Winds, and inhumanly forced them to run without Interruption ; for certainly a servile Necessity has added Wings to their Feet, if not to their Shoulders.

Often our running Footmen have a Swelling in the Spleen ; for the loose Substance of this Organ receives more Blood, upon the violent Motion, than it discharges, and so a serous Humour, stagnating in its Cavities, makes a Humour. *Pliny* * writes, that the Ancients used to scar or burn the Spleen of Runners, because it was an Impediment to them in Running. Accordingly the Servant in *Plautus* is brought in, saying, *Perii, sectionem facit Lien*.

Such are the Disorders intailed upon Running, which are further confirmed and increased by the usual Intemperance of this Sort of Men. They may prevent the Ruptures by wearing Trusses before that common Misfortune befalls them. Their Meagreness and Loss of Flesh may be repaired, not only by a moistening Diet, but by soft and oily Frictions, and Baths when they have Leisure ; the same Remedies being likewise proper

against the Constriction of the Pores, which they are liable to, after much Running and Sweating. The Rupture of the Vessels, and the Spitting of Blood, may be prevented by Bleeding ; and, whenever they are taken ill of any considerable Distemper, Bleeding is never to be omitted ; for no Part of their Body is so weak or so much exposed as their Lungs : For as *Hippocrates* * says, Motion and Running strengthen the Joints, as Idleness infeebls them ; but it is not so with the Lungs, which are heated by the violent Motion, and lose their natural Spring.

Such are the Remedies and Cautions proper for this Sort of Men ; but they never ask for Advice till they are actually upon a sick Bed, or brought under some of the above-mentioned Disorders ; in the Cure of which it will still be necessary to have a Regard to the occasional Cause.

As for the Obstructions in the Viscera, and chiefly in the Spleen, after the Use of aperient Remedies, such as Chalybeats, Walking will be proper. Thus, when the *Cappadocian* in *Plautus* † complained to *Palinarus*, that her Spleen was broke, he answered, *Ambula, id tibi optimum est.*

C H A P. XXXVI.

Of the Diseases of HORSE-COURSERS or GROOMS, and those who ride Post.

UNDER the last Head we might not have improperly brought in the Grooms, who are employed in breaking and managing Horses ; and pub-

* 9. in 6. Ep.

† *Cervin. Att. 2. Sc. 1.*

public Postmen, who shift Horses often; for they are liable to almost the same Disorders with the running Footmen: They are subject to Ruptures, Asthma's, and particularly the Sciatica; which, according to *Hippocrates*†, was familiar to the *Scythians*, they being a People who were constantly on Horse-back; for which Reason the same Author says, they were likewise unprolific. Continual Riding uses to burst the Vessels of the Breast, as *Ballonius* || has observed; and likewise to injure the Kidneys, insomuch that often your Horse-courfers piss Blood; and sometimes they are seized with a Feebleness in the Loins, according to *Hippocrates**. They are likewise subject to Chops in the Fundament and the Piles, especially when they manage trotting Horses, and without Saddles; pursuant to that of *Martial* †,

Nam solet a nudo surgere ficus Equo.

I remember once to have met with a young Equerry, who with much Blushing and repeated Assurances of his Honesty, acquainted me, he had been long troubled with a *Sycosis*, or Fig-like Excrecence in the Fundament: But I quickly undeceived him, in letting him know, that I had no Suspicion of his Dishonesty, and knew it to be an Infirmary occasioned by Riding.

They are also subject to sordid, obstinate and callous Ulcers in the Buttocks and *Perinæum*, and Varices in the Legs. *Hippocrates* || relates the Case of one who was troubled for six Years with a *Hippuris*, a Swelling in the Groins, a Varix, and inveterate Defluxions upon the Hip, or else up-

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† *De Aer. Aq. & Loc.* || *Def. med.* p. 81.

* 4. *Epid.* n. 17. † *Lib.* 14. 84.

|| 7. *Epid.* c. *finem.*

on the Joints. *Hippocrates* calls the Disease contracted by Over-riding by the Name of *Hippuris*, i. e. a callous Ulcer in the Hips, as *Vallesius* interprets it ; so many are the Mischiefs which attend Over-riding : And it were no difficult Matter to shew the *Ætiology*, or Reason, of such Accidents ; for the violent shaking of the Body is able to disturb the whole *Oeconomy* both of the solid and fluid Parts : All the Viscera are jolted and jogged out of their natural Situation by the Motion of the Horse ; and at the same time the whole Mass of Blood is disturbed in its natural Motion. Hence proceed Defluxions or Stagnations of Serum upon the Joints, Ruptures of the Vesicles in the Lungs and Kidneys, and Ulcers and Varices in the Legs, because the Reflux of the Blood is retarded, especially in those who breed or manage Horses ; for they must always keep the Muscles of their Thighs and Legs distended, for fear of being thrown : If we consider how much Strength is required when one sets a Horse at full Speed, or manages him to make various Motions and Turns, the whole Body being upon that Occasion kept in a tonic Action, and the Muscles struggling much to counterpoise one another, we shall think it no strange thing, that these Men are liable to the Distempers above-mentioned.

Martianus, that excellent Commentator upon *Hippocrates* * having Occasion to comment upon the Place where the divine old Father explains what Injuries our Bodies receive from running in a Curve Line, and running round, gives a very good Reason why running round is so pernicious, by an Instance taken from Horse-courfers ; his Words are to this Purpose, *The Body is more strained in running round, because then the Bulk and Weight of*

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the Body leans only on one Side, with a great Stress, by which Means the Body is much tired ; so that this sort of Running extenuates the Body more than any other. This Truth we find confirmed by the Horse-courfers, who own, that a Horse is more tired by riding one Hour in a circular Way than by running two straight forward ; and that these Circular Races are so enervating, that the strongest Horse cannot hold out half an Hour. Those who manage and breed Horses place their chief Diligence, in inuring them to this circular indefinite Way of Running, as *Hippocrates* calls it.

I intimated above, from *Hippocrates*, that continual Riding renders Persons frigid and impotent ; witness, the *Seythians* : Now I reckon this comes to pass, because the Strength of the Loins and the genital Parts is dissolved by the continual Shaking and Jogging. *Aristotle* * indeed seems to be of another Opinion, for he writes, that Riders are much given to Venery, by reason of the continual Heating and Confrication of the Genitals ; but that is to be understood of those who ride moderately, and upon easy Horses : In fine, the Inconveniences and Disorders, which attend much Riding, are very great, especially in riding upon trotting Horses, and the Post-horses ; which King *Theodoric* prohibited by an Edict, to be loaded with above an hundred Weight, as reckoning it improper to overload a Creature that was designed for Speed and Expedition.

I do not deny but that moderate and gentle Riding may be very beneficial, and sometimes serve for a Remedy against chronical Diseases ; for, according to *Hippocrates* †, easy Riding heats, dries, and

* Sect. 4. Prob. 12.

† 12. De Diet. #. 28.

and extenuates; and *Avicenna* recommends it for promoting Urine, and expelling the Stone in the Kidneys. Among the Moderns, Dr. *Sydenham* * gives great Encomiums upon Riding for Obstructions of the Liver and Spleen. I remember to have had a young Groom under my Care, who, after recovering of an acute Fever, was seized with Obstructions in the Spleen, and a Tendency to a Dropsy; but cured himself in a Month's Time, by returning, upon my Advice, to his wonted Exercise of Riding, even when he was very weak.

I shall not trouble the Reader with a long Series of the Cures of such Diseases as Grooms and Post-boys are subject to, since these are met with in all Practical Authors, who may be consulted upon Occasion, a heedful Regard being still had to the occasional Cause, so I shall only stay to offer some Cautions, which may be of Use to those who ride much. They ought to wear a Truss, for fear the excessive Riding should cause a Rupture, by breaking in or relaxing the *Peritonæum*; short Stirrups are certainly the best, especially in case of a Rupture; if there be any Suspicion of the breaking of any Vessels in the Breast, or if the Kidneys and Bladder begin to be affected, this Exercise must be left off; for nothing is more injurious to these Parts than Riding.

Ludovicus Corbellus, a *Mirandulan*, who was so famous for managing Horses, that *Philip IV.* of Spain sent for him to be his Equerry; brought himself, by over-riding, to that Condition, that he voided a great Quantity of Blood at the Mouth, and a few Months after was just ready to expire, when, of a sudden, he took a Fancy to have some Pork, though he otherwise loathed all man-

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ner of Food, and, upon eating of it, thought himself better ; after which he prolonged his Life for a Year, by feeding upon boiled Pork and Pig.

C H A P. XXXVII.

Of the Diseases of PORTERS.

IN populous Cities, especially those which lie upon the Sea, such as *Venice*, the vast Confluence of People from several Nations, and the large Quantities of Goods exported and imported, occasion a Necessity for great Numbers of *Porters* ; so we come now to see what Diseases are usually incident to these *homines Clitellarii*, as *Plautus* * calls them : The carrying of great Weights upon their Shoulders occasions various, and sometimes violent Disorders ; for, being obliged to keep in their Breath by the forcible Action of the Muscles, especially those of the Breast and the Abdomen, they often undergo a Rupture of the Vessels of the Breast ; for, when a Porter heaves the Burden first of all upon his Shoulders, he inspires a great deal, and after that expires but little ; by which Means the pulmonary Vesicles are so inflated, that the Blood-vessels of the Lungs have not a sufficient Capacity for performing their Office ; and thus it is no wonder the over-distended Blood-vessels should be easily broke.

The Tone of the Muscles of the Thorax being broke, and the Structure of the Lungs vitiated, by the same Means, they are apt to be asthmatic ; and often the Lungs adhere to the Ribs, by reason

of the keeping in their Breath ; as I have frequently observed in dissecting their Corps. They also used to have great Varices in their Legs, the Motion of the Blood upwards being retarded by the Distention of the Muscles of the Thighs and Legs ; upon which insues a Dilatation of the Veins in their Valves. In Process of Time they grow round-shouldered, the Vertebrae of their Backs being constantly bended forwards, and so contracting an habitual Posture : For, though they are ignorant of the Rules of Mechanicks, Nature has taught them, that they bear Burdens upon their Shoulders better with their Breasts bended, than when the Body is raised upright.

They used frequently to be seized with Ruptures ; for, in keeping in their Breath, the *Peritonæum* is easily broken or dilated. *Hildanus* * gives us the Case of a Carpenter, who strained himself so, by lifting a Burden, that his Caul fell down into the Scrotum, and he died in seven Days after. The successful *Platerus* † says, Porters are liable to Phthisics ; and gives Instances of a Stone-cutter and others, who, by lifting great Weights, contracted a Spitting of Blood.

Hippocrates ‡ mentions a remarkable Case of the like Nature ; *A Man*, says he, *who lifted up an Ass upon a Wager, was presently seized with a Fever ; on the third, fourth, seventh and eighth Days he voided Blood, upon which a Crisis ensued, together with a Looseness.* Since the Fever followed immediately, no Doubt, the lifting of that great Weight was the occasional Cause of the Fever : But *Hippocrates* does not tell us from what part of the Body the Blood issued. *Vallesius* §, in his Comment, thinks it issued from the Nostrils, and that there-

* Cent. 1. Obs. 72.

‡ 4. Epid. n. 13.

† Qu. pat. 2. 56.

§ 4. Aph. 27.

thereupon the Fever disappeared, and the Belly became soluble; there being an Aphorism *, which teaches us, that, when much Blood flows from any Part, the Laxity of the Belly uses to follow. But we find that *Hippocrates* in his Epidemical Histories, uses always to add the Word *è naribus* from the Nostrils. However, let the Blood issue from what Part it will, it is manifest, that these Men are apt to void Blood from the Breast, the Nostrils and the Hemorrhoid Vessels, upon which heavy Disorders ensue.

Porters being thus exposed to Disorders from their Way of Business, it will be of use to Practitioners to know their peculiar Diseases, and proceed with usual Caution in having an Eye upon the occasional Cause. Considering that they use to provide for the Strength of their Bodies by hearty Feeding, as the Wrestlers did of old; Bleeding ought to lead the Van in the Prescriptions made for them; and that ought to be followed by such Things as cleanse the Stomach; and the Remedies calculated for Lassitude and Tiredness, such as Baths, Lotions, and the like. In regard they are apt to have Ruptures, they ought to wear Trusses by way of Precaution, and not try with one another who shall carry most, lest the same Fate befall them which happened to the Man mentioned by *Hippocrates*, who lifted up the Ass upon a Wager.

Here we shall take occasion to propose that mechanical Problem, Why Porters carry Burdens upon one of their Shoulders with their Bodies bending forwards, better and easier than when they stand upright; especially considering that one would think they should carry them with more Strength and less Danger of falling when they stand straight; as Pillars and Posts bear vast Weights
when

* See. 4. apb. 27.

when they stand upright, and Women who carry huge Weights upon their Heads for several Miles, walk always upright, taking Care not to depart from a perpendicular Line, for fear of falling under the Weight: Perhaps the Reason is, in the erected Position of the Body the Weight would press upon the small Bone called the Clavicula or Channel Bone, and that in the middle more than the ends, so that it might easily be broke; whereas in a Posture bending forwards, the Weight leans upon the Shoulder-blade, which is a broad, large, and strong Bone, so neither suffers so much by the Pressure, nor is so apt to be broken. To confirm this Conjecture we observe, that a heavy Body is born with a less painful Pressure by the whole Hand, than by one Finger; and that a Ball of Gold of one Pound weight placed in the Palm of the Hand, makes a greater Sense of Pressure, than a Wooden Ball of the same Weight, because the Ball of Gold, being of a lesser Dimension, exerts all its Force upon the Parts which lie under it, and these are fewer than those possessed by the Wooden Ball. Now the Weight, leaning upon the Porters Shoulder in a bending Posture, rests not only upon the stronger Part, but upon more Parts of the Body than it would if the Body were erected, whether the Weight be solid, as Wood, or flexible, as a Sack of Wheat; and thus the Burden is borne with more Ease: Pursuant to which Rule, as soon as the Weight is raised upon the Porters Shoulders, they presently bend their Body forwards, and shoot their Buttocks backwards, that the Center of Gravity may continue in the Line of Direction. I observed at *Venice* and *Ferrara*, that the Porters carry Sacks of Wheat not upon one Shoulder as our Porters generally do, but upon the Neck and Vertebrae of the Back, so that

That the Weight rests upon the whole Length of the Back, by which Means, they say, it presses less than if it were carried upon one Shoulder; pursuant to that Saying of the Poet, *Leve fit quod bene fertur onus*. As for the Women who carry great Weights upon their Heads, they are obliged to go upright, for if they bent their Head, the Weight, being thereby put out of the Line of Direction, would necessarily tumble down. The Reason why they carry these great Weights, with so much Ease and Agility, is, because they rest directly upon the Skull, which is a strong and vaulted Bone, and upon the Vertebrae.

CHAP. XXXVIII.

Of the Diseases of WRESTLERS.

THOUGH the Vicissitudes of Time have brought into Disuse many Institutions of the Antients, and particularly the Shows of Wrestlers and Fencers, which went by the Name of Games and Shows, as if the Butchering of Mankind had been so diverting a Sight; yet we think it not improper to insert a few Remarks of the Wrestlers and their Diseases, from whence it will at least appear how accurate the antient Physicians were in examining and curing the Diseases of Tradesmen. The greenest Novice in the Way of Physic, cannot but have heard of that Oracle of Hippocrates's, *Habitus exercitatorum*, &c. the genuine Exposition of which has been so variously and artfully pursued by so many Commentators, to whom I dare not pretend to add any thing after the Essay of

of the learned *Tozzius*, Physician to his Holiness, in which he offers a just and solid Interpretation of the Aphorisms of *Hippocrates*, according to the Doctrine of the Moderns.

In antient Times the public Shows were so frequent, that the Wrestlers and Champions were very numerous; for their Office was not reckoned a servile Exercise, but free-born and noble Youth were bred up to various Sorts of Exercise. Hence *Parmenio* in *Terence**, proffering a Youth to *Thaenides* commends him for being versed in the *Palæstra* as well as Letters. It is manifest therefore, that the Physicians had frequent Occasion to have Wrestlers under their Care. Now the Diseases which they were usually subject, were Apoplexies, Swoonings, suffocating Catarrhs, Ruptures of the Blood-vessels in the Breast; and oftentimes they died suddenly. The principal Cause of these Diseases was the great Plenty of Humours and Distension of the Vessels, by which Means the Motion of the Blood was either mightily retarded or quite stopped, and thereupon ensued a Stagnation of the Blood, and of all the Fluids; the necessary Consequence of which is sudden Death. And this happened the more frequently, because they used to prepare themselves for Wrestling by Idleness and high Feeding; for *Hippocrates* affirms†, that it is more dangerous to turn from Idleness to Exercise than from Exercise to a slothful Life: For in violent Exercises the Blood is so very much heated and rarified, that it does not pass so readily from the Arteries into the Veins, as it does through the Arteries, especially when the Vessels are very full.

Hippocrates ‡ has given us a full Account of these

* In *Eunuchos*.

† De rat. Vict. in ac. n. 24.

‡ 5. Epid. n. 27.

their Way of Feeding in his History of *Bias*: *Bias*, says he, *the Champion*, being naturally a great Eater, happened to be seized with a cholerick Illness; voiding Bile both upwards and downwards. This Illness he owed to the eating of Flesh, especially Pork not well done, to the excessive drinking of sweet Wines, and to the eating of Tarts, and Cheese-cakes prepared with Honey, Cucumbers, Melons, Milk and Barley-bread.

Such was the Diet of these Champions, by which they procured hale and robust Constitutions. *Aristotle* * affirms, that they underwent several Shapes and Aspects, because they could not digest and make an equal Distribution of that Variety of Food which they used; and *Plato* † justly brands them for a sluggish, heavy-headed, and giddy Sort of Men.

Galen ‡ likewise censures this Profession in several Places, as being injurious both to Body and Mind; and it is possible his own Experience had taught him so much, as we may gather from his own Words; for he says himself ||, that, when he lived at *Rome*, he was tempted in the thirtieth Year of his Age to list himself among the Champions, and dislocated his Shoulder to the great Danger of his Life; for he was under great Apprehensions of Convulsions, insomuch that he was obliged to bathe the dislocated Part Night and Day with hot Oil, and lie naked upon an Animal's Skin in the Dog-days.

It is well known what Means the antient Physicians used for the Champions; copious Bleeding was the chief Remedy; not that they meant thereby to prepare the Body for farther Nutrition, but to

* 4 *De gen. anim. c. 3. et 8. Polut.* † 3. *de Rep.*
† *Suas. ad Lorg. Act. et l. ad Thra. sib.* ‡ *Com.*
|| *in l. de Artic. n. 60.*

to retrieve the Motion of the Blood, which, being intercepted in the Vessels of the Lungs, or the crotid Arteries, might have occasioned sudden Death. They likewise exhibited strong Purgatives and prescribed a very spare Diet when the Disease intermitted, together with many other Measures both for Cure and Preservation.

The Masters of the Games use to prohibit the Wrestlers the Use of Venery, for fear of enervating their Bodies; nay, they use to padlock and button up their Privities. Hence *Martial* * in his Epigram upon *Menophylus*, the Jew, says,

Delapsa est misero fibula, verpus erat.

But after all, too long an Abstinence from Venery joined to high Feeding, made them sometimes too lazy and slothful; upon which Occasion *Pliny* says †, they used to take off the Padlocks and recover their wonted Briskness and Agility, permitting the Use of Venery: For, as *Celsus* says, Venery ought neither to be too eagerly desired nor too nicely avoided; if it be repeated but seldom, it cheers and rouzes the Body, but the Frequency of it dissolves the Constitution. In like manner *Hippocrates* says ‖, Labour, Meat, Drink, Sleep, and Venery, ought all to be used with Moderation.

C H A P

* Lib. 7.
1. Chap. 1.

† Lib. 28. c. 25. H. N.
‖ 6. in 6. Epid.

‡ Lib.

C H A P. XXXIX.

*Of the Diseases of those who work upon
MINUTE THINGS which strain the Eyes.*

THERE are some Tradesmen employed in the finer and smaller Sort of Workmanship, such are Goldsmiths, Watchmakers, Painters, I mean those who paint upon Jewels, and Writers, such as he who wrote *Homer's Iliads* in the Compass of a Nut-shell, as *Tully* informs us *. The Misfortune entailed upon those Men from their Business, besides the Inconveniencies of a sedentary Life, is that common Disease of the Eyes, called *Myopia*, in which the Objects are not seen, unless they be placed near the Eye; and accordingly we see most of these Tradesmen use Spectacles at Work. *Welius* † makes mention of this Sort of Tradesmen in a particular Manner, and says, they are weakened, because it is usual for the Parts which are most exercised to be most weakened. But we may draw a better Reason for this Weakness of the Eyes from the Principles of the Optics.

I was always of the Opinion, that nothing can illustrate the Manner of Vision, but a dark Room, in which the Images of external Things are represented upon a white Linnen-cloath; which Thought we owe first to *Platerus* ‡, and then to *Plempius* in his *Ophthalmographia*. For if we place a convex Glass in the Hole of a dark Room, the nearer the Object approaches to the Hole, the further must the Cloath be removed from the Aperture, to make

* *Vid. Plin. l. 7. c. 21.* † *Path. Dogm. Sect. 2.*
c. 10. ‡ *Lib. 4. Prob. 39.*

a distinct Representation of the Object: And, on the other hand, the further the visible Object is removed, the nearer must the Cloath be brought to the Hole, otherwise, the Representation will be confused; for the distinct Images of Things are drawn, as it were, with a Pencil only in the Point where the Rays join. From hence it appears, that the Eye, which is of a finer and more admirable Structure, cannot distinctly see Objects at a Distance, and near at Hand, unless it be moveable, and apt to change its Figure; so that, either the Net-like Coat, or the chrystalline Humour, may be easily moved. Common Experience teaches us, that, when we view Objects at a Distance, and do not perceive them clearly, because the Rays, entering the Eye, almost parallel, meet too soon behind the *Pupilla*, we can, by straitening and contracting the Eyes, by the Means of the Muscles and the Eye-lids, so alter the Figure of the Eyes, as to have a clear and distinct Perception of the Objects, which otherwise we saw but confusedly.

Now those, who work all Day long upon very fine and small Work, cannot have a distinct View of the minute Objects before them, without keeping their Eyes very steady and intent, and fixed with a tonical Sort of Motion, or a Motion always directed to one Point; and consequently, though their Eyes are naturally moveable, that being a necessary Quality for perceiving Objects at a Distance, as well as near at hand, yet, by keeping the Eye constantly in this one Position, they contract such a Habit, that the *Retina*, being injured and accustomed to one Form and Figure, persists in it, and cannot be moved at Pleasure for the Perception of remoter Objects: And it is for this Reason, that such Tradesmen are almost all of them troubled with a *Myopia*.

Add to this, that, while the Eyes are kept immoveable, and perpetually fixed upon one Point the Humours grow thick, and lose their Transparency along with their Fluidity, which gradually makes way for a Weakness of the Sight ; so that, though such Tradesmen may naturally have nimble and clear-sighted Eyes, they become short-sighted in Process of Time.

So great is the Calamity entailed upon this Sort of Work, and the finest Pieces of Workmanship, such as Clocks and Watches, are so apt to produce this Weakness of the Eyes, that many of the Workmen are almost blind before they arrive at old Age. I know a *Jewish* Woman in this City, who had a peculiar way of stringing of Pearl, and that so artificially as to cover their Blemishes, if there were any, and by this Means got a great deal of Money : But when she came to be forty Years of Age, finding no manner of Relief from Spectacles, she was forced to leave off the Business. I remember likewise to have heard several Printers complain, that they have given a considerable Shock to their Eye-sight, by Composing small Types.

In earnest, I do not see how we can afford any Relief to the Workmen we now treat of ; for it is not easy to persuade them to leave a beneficial and lucrative Trade ; and Physic is unprovided with any Remedy which can restore the primitive Strength and Mobility of the Eyes, after the Disorder is become inveterate ; for neither Purging, nor Bleeding nor the other medicinal Means can take place in this Case, in regard the Patients are otherwise well and brisk, and their Spirits being neither clouded nor incrassated, it would be impro-

per to punish an innocent and sound Head with the Commotions of Medicines.

However, I would advise such Workmen not only to use Spectacles, but to intermit from their Work now and then, and refresh their Eyes with Diversity of Objects. For we cannot imagine how much the Mobility of the Membranes of the Eyes, and the native Fluidity of the Humours is kept up by viewing different Objects, some near at hand, some remote, some directly, others obliquely, and in fine, all manner of Ways; For by this Means the natural Disposition of the Eye is preserved, so that the Ball is sometimes furled or contracted, and sometimes dilated; and the chry-stalline Humour approaches more or less to the *Pupilla*, according as the Remoteness or Nearness of the Object requires. Without this Diversity of Action, the Eyes undergo the same Fate with the other Parts, which by being long detained in one Position, grow stiff and unfit for Motion. Of this we have a manifest Instance in those, who, upon coming out of dark Prisons, where they have been long kept, are forced to accustom their Eyes gradually to the Light, because the *Pupilla* or Ball of the Eye having been long dilated, and its elastic Spring weakened, it forgets, in a manner, how to contract itself as it used to do.

C H A P. XL.

*Of the Diseases of MUSIC MASTERS,
SINGERS, and others of the like Pro-
fession.*

THERE is no Exercise, though never so healthful and innocent, but what may produce great Disorders, if it be used with Intemperance; witness the sad Experience of Music Masters, Singers, Preachers, Monks, Nuns, (who sing perpetually in the Churches) Hawkers, Cryers, Clerks, Philosophers who dispute warmly in the Schools, and all others whose Profession obliges them to exercise their Voices. These Men use generally to be subject to Ruptures, unless they be Eunuchs; for, by prolonging and confining the Expiration of the Air, in forming their Voice or making Rehearsals, both the Muscles of the Abdomen subservient to Respiration, and the *Peritonæum*, contract a Laxity, upon which a Rupture in the Groin readily ensues, just as we see over-crying and Bawling make Tumours in the Groins of Children. *Fallopious* * took notice of this Accident chiefly in Singers and Monks. Our Singers who sing the Base, and our Friars, are generally bursten, by reason of their continual crying and straining the Voice, in which the Muscles of the Abdomen are employed. In like manner *Mercurialis* says †, our Modern Singers are subject to Ruptures, whereas the Antients were not, because they made frequent Use of Baths, by virtue of which the *Peritonæum*, the *Scrotum*, and the little

M 2

Cells,

* *Tom. 3. de Hydr. 21.*† *Lib. 6. Gymn. c. 5.*

Cells of the Testicles, were moistened, so as to be extended with more Safety, and be better guarded from breaking or bursting. And in my own Practice, I have met with more Ruptures among the Nuns, than among other Women; which I impute to their frequent Singing.

* *Mercurialis* in his *Gymnastica* observes, that an acute shrill Voice causes Distentions of the Head, Palpitations of the Temples, Pulsations of the Brain, Inflations or Swellings of the Eyes, and a Tingling in the Ears, which are not observed to follow a deep, base sort of Voice: For, in forming the acute or shrill Sound, and suspending it for a long time, there is a Necessity of a great Inspiration of Air, and keeping in the Breath, as one may experience in singing over a musical Scale; for when you come to the uppermost Note, there's a Necessity of distending all the Muscles both of the Breast and the Abdomen, by which Means the Reflux of the Blood is retarded; and hence arises a Redness in the Face, Pulsation of the Temples, and the other above-mentioned Symptoms. For the same Reason Singers are oftentimes hoarse, and affected with violent Rheums, the Lymph being too plentifully expressed from the salivary Glands.

Being acquainted with *Margarita Salicola Scervina*, the famous Singer at the Opera's at *Modena*, I have heard her say, that she is frequently seized with a Hoarseness after singing long at a Time. But the strangest Thing of all is, that, when this Woman is in a perfect State of Health, she can throw out of her Mouth at Pleasure a great Quantity of gross Lymph, and that in a Moment of Time as it were; which can only be owing to the violent tuning of her Voice. She informed me

fur-

further, that, upon singing long with open Mouth upon the Stage, without breathing in fresh Air, she uses soon after to be seized with a Vertigo.

Since Singing therefore and Speaking loud are so apt to infract and disorder the Head, the Physicians have Reason to prohibit Talking and Reading, during the Pains and other Disorders of the Head.

I am truly of Opinion, that no manner of Exercise heats the Body more than that of the Voice; for we see the Pulpit-men are all in a Sweat before they can deliver one Hour's Discourse: Nay, it is possible, the Lungs may undergo more Fatigue and Labour in this Exercise, than in Running, by reason of the unequal Tenour of Respiration which attends Singing, Rehearsing, Reading; and the Pronunciation being sometimes sharp, and sometimes slack and low, as the Nature of the Subject requires. It is no Wonder then, that these People are apt to be short-breathed, and sometimes throw up Blood upon the breaking of some Vessel in the Breast; which Accident I lately met with in an eloquent Orator, who after recovering of a severe Fit of Sicknefs, ventured to pronounce a Panegyric before his Health was confirmed, and thereupon voided a great Quantity of Blood at the Mouth.

Pliny * has a noble Epistle, which is very well worth reading, in which he recommends to *Paulinus*, *Zosimus* his manumitted Servant, who was very ill of a Spitting of Blood, and apprehensive of a Consumption of the Lungs: He acquaints him, that *Zosimus* was instructed in several Arts, particularly in Reading and Rehearsing; and that, after Speaking loud he fell into a Spitting of Blood, of which he was cured in *Ægypt*; but upon his

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Return

* Lib. 5. Ep. 19.

Return relapsed again, after straining his Voice for two Days together, the Evacuation being ushered in by a gentle Cough. To conclude, he adds, he had sent this his Servant to *Plautinus's* Country-house in the *Forum Julii*, for the sake of the Air, and begs he may be made welcome.

To this purpose is that golden Saying of *Hippocrates**, *All Straining of the Voice, whether in Speaking, Reading, or Singing, puts the Soul (Anima) in a Commotion*: But the Question is, whether *Hippocrates* meant by the *Anima* the Blood itself, in regard the Exercise of the Voice puts the whole System of the Blood into violent Commotions: It is the common Opinion indeed, that the Blood is the Seat of the Soul; nay, it is manifest, that the Blood uses to be taken for the Soul itself, as in *Virgil* †.

Purpuream vomit ille Animam————

Certain it is, that Singing puts the Mass of Blood in such a Heat, by the Confession of the Musicians themselves, that, when they go off the Stage, they often piss Blood. But after all, it is more probable, that, by *Anima*, he meant, the Breath, which we suck and expel by Inspiration and Expiration. For there is no manner of Exercise, which affects and Disorders the Organs of Respiration more, nor indeed so much, as the Exercise of the Voice. We all know that Saying of *Plautus*;

Fætet anima uxoris meæ,

my Wife's Breath stinks.

To

* 2. *De diæt.* n. 26.

† *Æneid.* l. 9.

To this Class belong those who play upon Trumpets, Flutes, Pipes, and in general all who sound with distended Cheeks; for the violent Imprisonment and Struggling of the Breath in sounding a Trumpet or Flute, occasions not only the above-mentioned, but even greater Disorders; such as Ruptures of the Vessels in the Breast, and sudden Evacuations of Blood at the Mouth. *Diemerbroeck* * in his Observations, has a terrible Instance of a Trumpeter, who by over-straining himself to sound beyond others, broke a large Vein in the Lungs, upon which he had a copious Efflux of Blood, and expired two Hours after.

As for the Remedies calculated for the Disorders above-mentioned, a Truss ought to be wore by way of Precaution, as well as Cure of the Rupture; for all the other Remedies against Ruptures, such as Frictions, Cere-cloaths, and Plaisters, are ridiculous. To preserve the Voice, or take off the Roughness of the Throat, Baths of sweet Water are very serviceable, as well as the taking of Cyprus Turpentine, and the Syrup prepared from it. *Galen* * cries up Baths beyond all other Remedies: *Those*, says he, *who hurt their Voice by over-straining it, such as Musicians, Preachers, and Actors, make much use of Baths, and feed upon gently laxating Food.* When the Breast is threatened with Injury, which may be predicted from a slight Cough, and the Habit of the Body, we must endeavour to persuade them to leave off this Sort of Business.

* *Obs. Med.* 56.† 7. *De comb. med.* 2. loc. c. 1.

C H A P. XLI.

Of the Diseases of HUSBANDMEN.

THAT Saying of the Prince of Poets,

*O Fortunatos nimium, sua si bona norint,
Agricolae, ———*

ought probably to be understood of that antient Race of Mortals, who manured their domestic and patrimonial Lands with their own Cattle; and not of the Husbandmen we have now, who are obliged to encounter endless Labour and extreme Poverty in manuring other Men's Grounds. However, the usual Diseases among the *Italian Farmers*, especially those on the two Sides of the *Po*, are Pleurifies, Peripneumonies, Asthmas, Cholics, St. Anthony's Fire, Inflammations of the Eyes, Quinseys, Tooth-achs and Rottenness of the Teeth. These Diseases may be imputed chiefly to two occasional Causes, the Air, and their Diet: For their Business exposes them to all the Inclemencies of the Air; they are bound to encounter sometimes the South and sometimes the North-winds; sometimes they are soaked in Rains, or the Night-dews, and at other times they are scorched with the Beams of the Summer-sun; and, let their Constitutions be never so robust and brawny, they cannot suffer such great Alterations without Damage, by being one while chilled with Cold, and at other times covered with Sweat, to all which they add a foul coarse Diet, so that they can-

cannot but gather a Crowd of gross and glutinous Humours, which produce these Diseases. For a febrile Effervescence being thus excited in the whole Mass of Fluids, the gross and viscid Humours are apt to stagnate in the Vessels of the Lungs, to which the whole Mass of venous Blood repairs; so that, pursuant to frequent Observation, when any epidemical Affection of the Lungs begins to rage, it makes its first Assault on the Country People, and sweeps off great Numbers of them. For the same Reason, they are frequently troubled with Colics and hypochondriac Disorders, which they call *il mal de Padrone*, from its resemblance of the hysteric Passion: For their gross and viscid Aliment produces a Redundance of pituitous and acid Juices in the Stomach and Intestines; and thence proceeds the Gripping and Distention of the Intestines.

But as Husbandmen follow various Sorts of Work, according to the Diversity of the Country, and of the Seasons of the Year, they used to be troubled, in Winter and the beginning of the Spring, with the Diseases of the Breast, Defluxions upon the Eyes, and Quinseys, the Cause of which Disorders, as I intimated above, is the Grossness and Viscidity of the Blood, which render its Circulation slower, and dispose it to Stagnations and Inflammations in several Places: For the Blood, drawn from their Veins in that Season, is so thick, that it resembles Bees-wax both in Colour and Consistency.

I do not believe, that, in any Set of Men the Blood undergoes a greater Change in a short time, than it does among the Boors and Country People; for those very Persons, whose Blood, drawn from the Veins in the Spring, is thick and glutinous, have a lively florid Blood in the beginning of Summer,

when they are seized with any Disorder : So great is the Influence of Exercise and Labour, that it readily turns the Mass of Humours to a contrary Crasis, which is not observed among the Inhabitants of Towns.

I have made one Remark, which is curious enough, in our Farmers Families, especially in their Children ; which is, that these Children, being for the most part under ten Years of Age, are seized about the vernal Equinox, with such a Dimness in their Sight, that they run up and down all Day long as if they were blind ; but, upon the Approach of Night they see very well. Now this Disorder goes off of itself, without the Assistance of any Remedy ; for, about the middle of *April*, they become as well as ever. Upon such Occasions I have often taken a narrow View of these Childrens Eyes, and found the *Pupilla*, or Ball, much dilated, which Disorder the Physicians call by the Name of *Mydriasis*, though Authors differ in their Thoughts of the Cause of it, as you may see in *Sennertus*, *Riverius*, and *Platerus*.

Gorræus * says, this Distemper is not much different from the Resolution of the *Pupilla* ; and indeed it seemed to me, that the Rays of the Sun in *March* might make some Colliquation in the Brain and optic Nerves, by which means the Tone and Spring of the Coat, called *Uvea*, may be so resolved, that it becomes flaccid.

These Children live all Winter in very hot and moist Huts ; and when the Winter is broke, that is, about the vernal Equinox, they peep out of their Dungeons, and expose their bare Heads to the Sun-beams, upon which a Fusion and Colliquation of the Humours may readily ensue ; and from thence proceeds the Dilatation of the Eye-ball, and

a Weakness of Sight, by reason of the Admission of an excessive Quantity of Light: But, towards the End of *April*, the Sun-beams, being more effectual, discuss the Humours which had thus fallen upon the Coats; and, the *Pupil* being restored to its natural Tension and Lightness, the Eye-sight is recovered without the Intervention of Remedies.

In Summer our Farmers are seized, not unfrequently, with acute and ardent Fevers, especially about *July*; and in the Autumn they are subject to Dysenteries, the Cause of which is to be imputed to the Eating of Summer-fruit, and other Errors in the Way of Diet. Many of their Women, being commonly employed in the Autumnal Season, in steeping Hemp and Flax in Lakes and Pools, where they stand wet up to their Middles, wading to cleanse it and pull it out, are thereupon seized with acute and mortal Fevers, which are owing not only to the Constriction of the Pores and Want of Transpiration, but likewise to the horrid stinking Damp which quite sinks the animal Spirits, and upon such Occasions annoys all the Neighbourhood. This certainly is the Season in which our Towns-folks ought to be most cautious of the Country Air; for then every Village is tainted with that ugly Damp; and *Kircher* * assigns this alone for the Cause of dismal Plagues in some Cities. The Virulency of the Steams, which rise from the Water in which Hemp is steeped, is sufficiently set forth by *Schenckius* † in his Observations, *Petrus a Castro*, *Simon Pauli* and others: And as for the Influence of Odours or Smells upon our Constitutions, we need go no further than to our hysteric Women, to be fully convinced of it.

Ano-

* *Scrut. Pestif. Sa. 1. Sect. 1.* † *Lib. 7. Ob. 8.*
de Febr. Punctic. Quadrip. Bot.

Another thing which contributes not a little to the Diseases of Boors, is their slothful Carelessness in heaping up the Dung, designed for improving their Grounds, just before their Cow-houses, Hogsties, and the very Doors of their dwelling Houses, keeping it there for a Nofegay all Summer; for at this rate the Air they live in must needs be polluted with the foul Steams which rise incessantly. Upon this Consideration *Hesiod* was against the Dunging of Grounds, and thought it more convenient to promote the Healthfulness of the People, than the Fertility of the Ground.

P. Zacchia * observes, that Gardeners are oftentimes troubled with Cachexies and Dropsies; for, being obliged to live in moist Places, because Gardens want to be often watered, their Bodies must needs imbibe a great deal of Humidity. I remember I once cured a Gardener of a Palsey, who had lost the Motion and retained the Sense of one of his Legs, and in the other retained the Motion but was deprived of the Sense. This Man was recovered with the Decoction of *Guaiacum*, and many other Remedies, after being ill many Years.

In *Hippocrates* † we meet with a History that runs thus; *He, that lay ill in Dealcles's Garden, had been affected a long time with a Heaviness and Stuffing in the Head, and a Pain in the right Temple; and at last, being seized with a Fever, was forced to take his Bed.* In commenting upon this Case *Galen* is very severe upon *Sabinus*, because *Hippocrates*, by mentioning the Garden, meant to point at the Cause of the Disease; for *Galen* condemns the Air of Gardens by reason of the Dung, and the unfavourable Exhalations of Trees, such as Box, and of such other Plants.

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* *Q. m. L. l. 5. Tit. 4. Q. 7.* † *3. Epid. ægr. 3.*

Those who live near Meadows are likewise liable to the same Disorders ; for there rises generally an unwholsome Air from Meadows, for the Reasons mentioned above. Hence the Lawyers say, a Man may enter an Action against a Neighbour who offers to turn tilled Lands into Pasture-grounds. See *I. Pratum de Rer. Verb. Signif**. And accordingly we find, that Hay-mowers and others concerned in the Culture of Meadows, are subject to various heavy Diseases.

But now the Question comes, How Husbandmen, who are so necessary to the Commonwealth, shall be relieved by Physic ? In Answer to which, it is certainly in vain to offer any Cautions by way of Preservation or Prevention ; for they seldom consult Physicians upon that Head, and, if any Physician gives such Advice, they are not likely to observe it : So all I can do is to subjoin some Remarks to be observed in the Cure, when they are brought from the Country to our Hospitals in Town, or when they are of the richer Sort, and can afford to send for a Physician.

In the first Place, when these People are ill of Pleurifies, or the Diseases of the Breast, we ought not to bleed them so liberally as we do the Inhabitants of Cities and Towns ; for their Bodies, being worn out with constant Labour, are easily enfeebled ; and besides, the whole System of their Blood is of a gelatinous Consistence, and robbed of the volatile Parts ; so that, when a large Quantity of Blood is drawn forth, their Strength sinks, and is not sufficient to master the Disease by Expectoration. I know very well, that some think we ought to bleed the more liberally when the Blood is so thick, in order to put it into Motion,

as they say; but this is a random Assertion: I would advise such People to consult the learned *Bellini* *, and see what Cautions are required for the drawing of Blood by Venesection: For certain it is, that the Blood does not move of its own Accord, or by the Force of its own Gravity, but by the Impulse of the Spirits with the Intervention of the Motion of the Heart; so that, when the Spirits are cast down and sunk, the Blood is so far from being put in Motion, that a Stop is rather put to its Circulation.

Ballonius † puts the Question, Why the Bodies of Servants, which are otherwise hard, compact and solid, and more healthy than those of Children, are yet more weakened with Purgation and Bleeding, in Time of Sicknes, than other opener and softer Bodies? To solve which he offers several Reasons, the principal one is, that their Bodies, being thick and distended by hard *Viscera*, are not so easily moved by Purgatives, nor so much benefited by Bleeding. Now the same may be applied to Farmers and Country-people. *Hippocrates* ‡ describes a certain Season, in which Servant-maids who were seized with Quinsys, died; but the young Women who were free and lived upon their own, recovered: So that we ought to form our Judgments of Diseases and their Cures, not only by the Habit and Constitution of the Body, but by the Condition of Life and Way of Business.

Thus we find a great many Errors committed in prescribing for this Sort of People, upon the Presumption that their robust Constitutions will bear stronger Remedies than the Inhabitants of Towns. I am often moved with Compassion, when I see the poor Country-people brought in to the

* *De Sang. Miss. Prop.* 6. † *Lib. 1. Eph. p.* 96.
‡ 7. *In 6. Epid.*

the public Hospitals, and committed to the Care of young Physicians just come from the Schools, who utterly exhaust their Strength with strong Cathartics and repeated Phlebotomy, without any regard to their being unaccustomed to strong Medicines, and enfeebled with Labour and Fatigue: And it is for this Reason, that many of these poor Wretches chuse rather to die peaceably in their Country-huts, than to lose their Lives in the Hospitals after the Oppression of Bleeding and Physic. As soon as Reaping is over in the Country, the Hospitals of *Rome* are crowded with Reapers and Day-labourers; and it is a doubtful Question, whether the Surgeon's Lancet, or the Sickle of Death cuts off most Reapers.

I must say, I have often wondered how several Country-people get over acute Diseases, not only without the Assistance of any Remedy, but even in the midst of their high Feeding; for, though they are poor, when any one is taken ill, the Neighbours come all a visiting, and bring with them Eggs and Pullets, of which they make Dishes; and by that means either elude the Shock of the Distemper, or hasten their Exit out of a Scene of Misery: And, in Allusion to this Custom, we have a common Saying, That the Country-people go to the other World with their Bellies full; whereas the Town's-folks are starved with Abstinence, and worn out with Torture of Physic, when they undertake that Journey.

But, when these People begin to recover, they return to their usual Way of Feeding, upon Garlic and Onions, which they value as the choicest Food: Now, I am apt to believe this sharp Aliment may supply the room of Medicines; for their Stomach, and indeed the whole Mass of Blood, inclines to an Acidity, especially in the Autumn after

after the Fatigue of their Labour, Onions and Garlic, like antiscorbutic Medicines, will serve to dissolve the glewy Thickness, and temper the Acidity. I know a great many of them who have cured Quartan Agues in the midst of Winter, with the use of Garlic and Onions, with generous Wine.

Galen * gives the History of a Country-man who was seized with a Cholic, and presently girded himself tightly about, and eat Garlic with Bread; upon which, continuing at his wonted Work all Day long, he was freed of the Cholic: *So that Garlic (says Galen) may justly be called the Country-folks Theriaca; and whoever prohibits the Thracians, or the Gauls, or the Inhabitants of cold Countries, to eat Garlic, does them no small Injury.* Another Remedy, which our Country-people cure the Cholic with, is, a Cataplasm made of bruised Leaves of Ground-pine, with the Yolks of Eggs, and applied to the Belly.

Hippocrates † has a pretty Sort of a Case, which he relates in these Words: “ Changes of Pasture
“ also afford Relief to the Patient on some Occa-
“ sions, as happened to the Man who wreathed
“ and platted Twigs, for being obliged to keep
“ his Bed on Account of the Pain, he empyloied a
“ Piece of Wood in pressing himself down, from
“ which he found Ease.” Here *Hippocrates* speaks of a Man who relieved his Pain by applying the Head of a Stake or Pole upon the Part; but he does not tell where the Pain was seated. *Galen*, commenting upon the Place, thinks it was a Pain in the Hand: *Vallesius* thinks it was a Cholic; and that he pressed the Part where the Pain raged most with a wooden Stake; since such Pains are much eased

* 12. *Meth.* c. 8.

† 3. *In 6. Epid.*

eased by a strong Pressure, by tossing the Body, and change of Posture or Figure. And this indeed Nature points forth in Belly-achs, when we naturally press and squeeze the Part affected with our Hand or our Fist, for that hinders the Distention and Rising of the Part. In like manner *Hippocrates* * recommends the Pressure of one's Hand in hystERIC Fits, in order to keep the Womb within its due Bounds; and in my own Practice I have found this one Remedy more serviceable, than all the Train of hystERIC Medicines.

But with Respect to the Cure of these poor People, it is plain, both from Reason and Experience, that their Bodies, being worn out with Labour, and sed with bad Nourishment, ought not to be exhausted with repeated Bleeding and Purging. Vomits they can bear with more Ease; and sometimes scarifying Cupping-glasses work Miracles in their continual Fevers, whether it be that the great Confidence they have in this Remedy, or that some other unknown Quality crowns it with Success: If we exhibit any Alexipharmics, they ought not to be of the volatile Kind, in Compliance with Nature, for they are apt to sweat not only in Summer, but in Winter; and it is well known, that Sweat is easily raised upon those who are inured to Work and Exercises. When the Disease is checked, and they begin to recover, let them return to their own rural Cottages, and take their usual Diet. *Plato* † had Reason to deride *Herodicus* the Physician, who offered to prescribe Rules of Diet to Workmen and Labourers.

I take this compendious Way of Cure, to be the best for the People we now treat of; for, in the use of a tedious long Series of Remedies, they gradually decay and grow sick of the very Cure.

C H A P.

* 2. de Morb. Mal. n. 82.

† 3. de Rep.

C H A P. XLII.

Of the Diseases usual in C A M P S.

MILITARY Discipline, which has long disputed the Precedency with Learning, it being a Doubt which is fitter to immortalize the Names of its Votaries, differs from all other Arts in this Point; that, whereas the others are calculated for preserving and supporting the Life of Man, than which nothing can be more precious, it seems only to project how to destroy and lavish it away. It is certain, that, in the Age we now live in, we cannot invent a more calamitous and miserable sort of Life, than that which our common Soldiers are forced to lead, not only in the Field and Sieges, but even in Winter-quarters; whether it be from our pursuing a different Method of War and Fighting from the Antients, or from the modern Neglect of military Discipline, the Health of the Soldiers being now less carefully looked after than in former Times. For those, who in any Expedition have the good Luck to escape the Fury of Fire and Sword, are often subject to a long Train of Evils; and generally Armies lose one of ten by some malignant, epidemic Illness. Hence we find, that Camp-fevers and other Contagions, mortal Diseases, are famous or rather infamous: For Instance, the *Hungarian Fever*, which first appeared in 1566, in the *Pannonian Expedition* of the Emperor *Maximilian II.* against *Solyman*, and is accurately described by *Sennertus* *, who calls it a military

* Lib. 4. c. 14. de Feb.

litary or Camp-fever, arising from bad Aliment and corrupt Water, in Conjunction with several other Causes, namely, Watching, vast Fatigue, Rain, Heats, Colds, sudden Frights, and a thousand other Hardships, which no-body knows but those who have felt them.

But of all the Causes, which introduce Diseases into Camps, I take none to be so pernicious as the Filth and Nastiness of the Camps. God prohibited the *Israelites* to discharge their Excrements within the Camp, injoining them not only to do it out of the Camp, but to dig a Hole in the Earth for receiving the Excrements, and then to cover them up; for which End every Soldier was obliged to wear a sharp-pointed Stake at his Side: And the same Custom is still observed among the *Turks*, whose Soldiers are much cleaner than ours. The Words in *Deuteronomy* * run thus; *Thou shalt have a Place also without the Camp, whither thou shalt go forth Abroad: And thou shalt have a Paddle upon thy Weapon: And it shall be, when thou wilt ease thyself Abroad, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee: For the Lord thy God walketh in the midst of thy Camp.* For my own Share, I acknowledge I never did practise in Camps; but I am informed, by Physicians who have waited upon great Armies, that sometimes in Summer there is such a nauseous Smell in Camps, that nothing can be more disagreeable: And therefore it is no Wonder, if peculiar and unknown Diseases break out in Camps, which require peculiar Names and Cures. We are not without some learned Authors who have expressly treated on this Subject, particularly *Raymundus Mindererus*, who has published a Treatise *de Militari Medicina*:
And

And *Henricus Screta*, who has writ admirably well of the Camp-malignant-Fevers.

I was once of Opinion, that the Practice of Physic in Camps bore a different Aspect from what it does in Cities, and was so lawless and unbounded, as to venture upon Remedies with a sort of Temerity: For as a Camp-life uses to prove but a short one, so I reckoned the Art of Physic should not be long winded, but expeditious in such Places: And that as the Occasions of Cure are slippery and quick-paced, so Experiments should be dangerous: And in fine, that the Accidents were so sudden and unexpected, and the Change of Camps so frequent, that neither the Physician nor the Patient could have the Opportunity of a regular Cure. But the learned Dr. *George Barsntorff*, Physician to the Duke of *Hanover*, undeceived me while he was at *Modena*: He informed me, that the Camp-practice is not so coarse and irregular as I took it to be; and that Princes and Generals of Armies take care to provide expert Physicians with large Stocks of Medicines, both for themselves and their Forces; as we read, that in the *Trojan War* the *Grecians* were attended by *Machaon*, a famous Physician and a noted Surgeon. In short, this learned Gentleman, having attended the *Brunswick* and *Luneburg* Troops for five Campaigns in *Hungary*, during which Campaigns the Armies were very numerous, communicated to me many material Remarks, which I am now about to relate, to the end that I may do Justice to the Subject from the Knowledge of another, where my own is deficient.

Setting aside Wounds, which are the Trophies of War, all the Diseases of Camps are by this famous Man reduced to two Heads, a malignant Fever, and a Dysentery; all the rest being only the

the Harbingers or Followers of these two. The nearest and most immediate Cause of malignant Fevers he imputes to a virulent *Miasma* entertained and rooted in the Mass of Blood; the occasional Cause being derived from lying long in the same Camp, from the dead Corps of Men and other Animals; and from the not covering of their Excrements, which are all apt to pollute the Air with corrupt Steams, and convey malignant Particles to the inmost Recesses of Life. He places this Malignity in an impure Acid, which is volatile, very active, and destroys both the Humours and the Spirits, by the Intervention of a Fermentation. These malignant Fevers, he says, appear generally towards the End of Summer; and are afterwards accompanied by Head-achs, Deliriums, Convulsions and colliquative Loosnesses, as Effects accompany the Cause. He adds, that these malignant Fevers disappear in the Camps when the Nights grow cold; for, the Sun being then upon its Recess, the Texture of the Air is more compacted, and the fetid Exhalations are wrapped up in their proper Receptacles; and so, an End being put to the active Influence both of the offensive Smell and Sun-beams, the Malignity is likewise at an End.

Thus he lodges the Seminary of this Malignity, which breeds and feeds Camp-fevers, in a corrupt and defiled Air; so that, if any Disease deserves the Title of *Hippocrates's τὸ Θεῖον*, certainly Camp-fevers have the best Right to it; which may likewise be affirmed of the Remedies exhibited in such Cases. That the Antients owned no *divine Thing* in any Disease, but such as owe their Original to the Air, is evident from the Testimony of *Hippocrates* *, who deduces the Original of Diseases from
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* *De flat. n. 4.*

the Heavens, *i. e.* the Air; and calls the Air, the Author and Ruler of what is incident to our Bodies; though *Helmont* * indeed would have this *divine Thing* to signify the wonderful Property of a Ferment.

The celebrated Physician, from whom we have these Remarks, says, that † *Hippocrates*, in his Book *de Morbis*, calls the Original of a Disease from the Air ἀνεπιτήδειον; and, in his Book *de Veteri Medicina* ‡, makes use of the same Word, to signify an acid Humour, in Opposition to a sweet Humour; so that a Contagion arising from the Air may be properly called, a volatile Acid.

The Symptoms, which precede these Camp-fevers, are a sort of Perturbation and Uneasiness, now and then a Shivering or two, a manifest Sign of a virulent *Miasma*. The Symptoms which accompany the Fever are Watchings, Deliriums, great Heats, Anxiety about the Heart, an oppressing Sleepiness, Head-achs, and often Sweats that last even to the Height of the Disease.

In order to tell the good or bad Event of the Disease, he says, we must have an attentive Regard to the Presence or Absence of Sweat; for if we observe Sweat, even from the Beginning of the Disease, with a large Pulse, we may infallibly predict a Recovery, notwithstanding the Appearance of very violent Symptoms; and a great many, who do not sweat, die suddenly, though their Symptoms seem to be milder: Neither is it so much to the Purpose, whether these Symptoms appear in the critical Days or not, since *Hippocrates* § calls those Sweats good, let them come when they will, which make the Disease more tolerable.

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* *In Igno. Hosp.* † Lib. 4. n. 26.
ult. || *Prænot.* n. 5.

‡ N.

As for the Cure of these Fevers, he says, he always found Bleeding fatal, and carefully avoided it; and that, after the first or second Shivering, before the virulent *Miasma* dived deeper into the Recesses of Life, he presently exhibited some volatile Alexipharmic, such as *Wedelius's* Bezoardic-tincture, with rectified Spirits of Hartshorn; the ensuing Days he prescribed a more temperate Cordial, such as Powder of Contrayerva, with Hartshorn and Salt of Vipers every six Hours, till a plentiful Sweat broke out; upon the Eruption of which he gradually lessened the Dose and Frequency of taking. In the mean time he did not offer to render the Body soluble unless in the Case of some urgent Necessity, for he observed, that the Laxity of the Belly stopped the Sweat and Transpiration: And, in order to promote the Transpiration, he exhibited the Decoction of Oats with Scorzonera-roots, Shavings of Hartshorn, and the like. He found Blistering-plaisters applied to the Arms and Thighs succeed well in three Cases, which were a Sleepiness, Head-achs, and Lice sculking under the Skin almost.

He proposes the same Method for the Cure of Camp-dysenteries, in giving twice or thrice in the beginning the same Bezoardics, joined with small Doses of Opiats, to the end that the Current of the Humours to the Fundament being thus checked, and the Fibres of the nervous Parts relaxed, Sweat may break forth with more Liberty; the Body being at the same time well covered up with Cloaths, and a Crust of Bread soaked in hot Spirit of Wine being applied to the Navel. Having procured Sweat, if the Body stood in need of any Purgation, he prescribed a laxative Powder of Rhubarb, red Coral prepared, and burnt Hartshorn to be taken in Broth; and upon repeating of this
twice

twice or thrice, he often found that the Diseases gave way: After which, if there was Occasion, he gave them some stomachic Medicine to raise their Appetite.

For quelling the Gripes and Throws in the Intestines, he recommends carminative and nervine Medicines joined to Opiats, such as the *Mixtura Polychresta* described by *Wedelius* in his *Opiologia*; and paregoric Bags of the Flowers of Chamomile, Linseed, Bran, and Salt. If the Flux of Blood continues long, he recommends the absorbent and styptic Medicines; such were the Remedies which he found most beneficial in the Cures of Camp-diseases, without offering to let Blood.

As for the Wounds, which are very frequent, he made a very curious Remark upon them; which is, that the very slightest and least suspected had a Camp-malignity in them: For he observed, that in long Sieges all contused Wounds, such as Gun-shot Wounds, especially in the Head, though ever so slight, were always difficult to cure; and, though treated with the greatest Care, proved often mortal to the great Discredit of the Surgeons, by the Accession of an Inflammation, and afterwards a Gangrene; insomuch that they suspected the Enemies had poisoned their Balls. But, being informed by Deserters, that the Besieged were equally unfortunate in their Wounds, we began to suspect some Malignity occasioned to the Wounds by the Air, and thereupon prescribed Bezoardics and Absorbents with cephalic Vulneraries; as also the Application of the same sort of Medicines to the wounded Part, by injecting into it Decoctions of Worm-wood, Viper's-grass and Rue mixed with Honey, or mixing the Digestive with Oil of St. John's Wort, Oil of Rue, and the like. By the

the Use of which Means they found the Cure succeeded better.

This learned Gentleman, whose Observations upon all manner of Things were very curious and exact, mentioned one Thing to me which cannot but gratify any one's Curiosity ; which is a very frequent Illness in Camps, which invades not only the Common Soldiers, but even Gentlemen and Persons of Distinction, and breaks forth in a sudden and passionate Desire of seeing their own Country and Relations (called in the *German Language, das Heimwehe*) which generally proves ominous. For, after that longing Desire seizes them, they either die of some Disease, or are killed in Battle, insomuch that scarcely one of a Hundred escapes ; and that it is a common Proverb in Camps, *He that seeks his Country finds Death.*

He told me further, that he knew Men of no small Figure, who were otherwise very brave, and yet, upon the Declaration of some intended Expedition, were so Thunder-struck, as to form in their Minds all of a sudden an Idea of their approaching Death, and to predict their ensuing Exit in that Expedition with so much Certainty, that they took leave of their Friends the Day before the Fight, made their Wills, and gave Orders for their Funerals : And after all, when the Engagement came, the Prediction was verified in their Death.

He further added, that this mental Disease, produced by the Impressions of Horror, and the dismal Prospect of Death, was cur'd by inspiring them with a different Turn of Soul, and by presenting them with a certain Emblem of their Safety, provided these measures were taken before the Disease was deep-rooted ; since, by the imagined Virtue of that Emblem, the Spirits, which were

formerly bound up, are set at Liberty, and the Image of Death effaced from the Mind.

Now this comes to pass by natural Means, and not by any Virtue inherent in these Emblems; for as the Force of the Imagination and Apprehension of Death throws the Soldiers into so great a Dependancy, so the same Power of the Imagination effaces the Impressions of Fear and Death, by the apprehended Virtue of the Emblems, though in reality they have no Virtue at all. We meet with a great many things in Authors concerning Amulets and Charms, but generally speaking these Authors ascribe no Virtue to them, beyond what is owing to the passive Deception of a credulous Mind. So true it is what *Seneca* * hath said, *Quædam non nisi decepta sanantur*, some Disorders are cured only by Deceit. This recalls to my Memory what I have read formerly in *Cartesius* of the Force of Imagination, which he says is so great, that to draw off the Imagination is the greatest Remedy of any Distemper: For, says he, if a Man be always entertained with Tragedies; though his Mind be composed, he will be seized with some sort of Grief; his Mind will be accustomed to Groans, his Heart and its Fibres will suffer a Contraction, by which Means the Circulation of the Blood will be retarded, and Obstructions bred in the Liver and the Spleen. On the other hand, if a Man be tortured with various Diseases, if he employs his Thoughts on such Objects as are pleasant and exhilarate the Mind, he makes way for the Recovery of his Health.

Another Remark, made by the said learned Gentleman, which indeed is no less curious than the former, was, That, after an Engagement, in most of the Corps that lay stripped on the Ground (as they

they commonly do) the Privy Members were raised and distended as with venereal Rage ; and that in the Corps of the Women a sort of Stiffness was observed in their lower Parts. For a Solution of this Phænomenon it may be offered, that, when Soldiers go upon an Engagement, they boil with Fury and Rage, which drives all the Spirits and Blood from the inner to the outer Parts of the Body ; insomuch that those who are killed in Battle, as they discover Fury and Threats in their Looks even when they are dead, so their Genitals retain a Convulsion after Death, by reason of the imprisoned Spirits detained in them. It is well known, that the Aspect of those who die a violent Death, and much more those who fall a Sacrifice to *Mars*, is widely different from that of others who die in their Beds of some acute or chronical Disease. *Valerius Maximus* * makes mention of a *Roman* Soldier, in the Battle of *Cannæ*, who, being disabled to handle his Weapon by the Loss of his Hands, caught hold of a *Numidian*, who was going to strip him, and after biting off his Nose and his Ears, expired full of Revenge.

I thought fit to insert these Remarks, communicated by the learned Gentlemen above-mentioned, as being useful not only to those who practise in Camps, but to the Physicians of Cities and Towns : For when War over-runs Provinces and Kingdoms, it often so falls out, that the Troops retire from their Summer-expeditions to winter in the neighbouring Cities and Towns, in which the Camp-diseases will by this Means readily occur. The last Year, when the *German* Forces wintered in these Countries, I had occasion to observe such Fevers and Dysenteries as we read of in Authors ;

and I know a great many Men of Figure died, to whom the Physicians, being ignorant of Camp-practice, and the Genius of Camp-diseases, prescribed unseasonable Remedies, such as Bleeding and strong Purges, without any regard to the chief Indication of conquering that virulent and raging *Miasma*, and throwing it out by the Pores of the Skin. In fine, Experience, the Mistress of Things, shews, that this is the only Way of proceeding in the Cure of such Diseases; and therefore, when any such Occasion offers, it becomes us to consult the Authors mentioned above. *Helmont* * likewise makes mention of a certain Fever, which runs its whole tragical Course without any Sense of Heat; and is by him called a Camp-fever: The Nature and Progress of this Fever is described by *Regnerus de Graaff* †, *Cornelius Bontekoe* ‡, *Etmuller* ||, and others. To conclude, I have observed, that almost all the Writers, who have treated of this Subject, impute the Cause of these Diseases to a volatile, corrosive, and strong Acid: So that the whole Indication lies in breaking and enervating this Poison, and throwing it out through the Glands of the Skin, by the help of volatile Salts.

C H A P. XLIII.

Of the Diseases of LEARNED MEN.

WE conclude our History of the Diseases of Artificers or Tradesmen with a short View of those of the learned World, hoping, that the Men

* *De feb. c. 1.* † *De suc.* ‡ *Panc. Distr. de feb.* || *T. p. de Febr.*

Men of Letters will not take it ill to find themselves ranked in the Class of Tradesmen, considering, that as other Tradesmen gain by their Trades, so they purchase to themselves by the pursuit of Letters, if not great Estates, like those of Merchants, at least a Livelihood and many comfortable Conveniencies : For I see few, in this Age at least, who would give themselves the Trouble of pursuing Learning, if they were not pinched with narrow Circumstances before they set about it ; so true it is, that necessity is at once the Mother of mechanic Arts and of Wisdom. Pursuant to which Maxim *Aristophanes* * writes, That if Poverty and Riches were out of the World, all things would be overturned, and Philosophy with all other Arts would lie uncultivated for want of Votaries.

Generally speaking, ingenious Men if pinched with Poverty, and buoyed up with the Hopes of getting Riches, apply themselves intirely to the Study of Letters ; and by that Means procure to themselves not only a splendid Estate, but great Reputation among the Persons of Quality, who are then forced to knock at the Gates of the Learned to ask Advice. But after all, though the Pursuit of Learning affords a plentiful Harvest of Riches and Glory, it seldom fails to produce Thistles and an ugly Crop of Evils : For learned Men, use *Ficinus*'s † Words, are as slothful and idle in their Body, as they are active and busy in their Mind and Brain, and so almost all of them, excepting the Practitioners of Physic, undergo the Inconveniencies of a sedentary Life. It is a known Saying, That a Man grows wise by sitting ; and accordingly they sit Night and Day among the Trophies of Learning, and are not aware of the In-

* In *Plut. Aet.* 4.

† *De Stud. val. tu. c. 3.*

conveniencies accruing to their Bodies, till the hidden Causes of Diseases have gradually crept in upon them, and confined them to their Beds. I have already shewn the Inconveniencies of a sedentary Life, and therefore shall not insist upon them now.

The Professors of Learning are likewise not unfrequently subject to the Inconveniencies of a standing Life; for, to avoid the Injury of a sedentary Life which is so much cried down, many of them run to the contrary Extream, and stand turning over their Books for several Hours, and even whole Days, which is not less, nay perhaps more hurtful, than constant sitting.

All the Men of Learning used to complain of a Weakness in the Stomach. *Celsus* * says, A great many of the Inhabitants of Cities and Towns, and almost all the Lovers of Learning, have weak Stomachs. There is no hard Student almost but complains of his Stomach: For while the Brain is employed in digesting, what the Desire of Knowledge and the Love of Learning takes in, the Stomach cannot but make an imperfect Digestion of the Aliment, because the animal Spirits are diverted and taken up in the intellectual Service; or these Spirits are not conveyed to the Stomach with a sufficient Influx, upon the Account of the strong Application of the nervous Fibres, and the whole nervous System, in profound Study. How much the Influx of the animal Spirits contributes to the due Performance of all the natural Functions of the *Viscera*, is manifest from the Decay of paralytic Parts; for though these Parts are supplied with vital Juice by the perpetual Afflux of the arterial Blood, yet they dwindle and decay by being deprived

prived of that nervous Juice, or Spirits, or whatever it is, which is conveyed to them through the Nerves.

This gives Rise to Crudities, great Plenty of Flatufes, a Paleness and Meagreness all over the Body, the Parts being robbed of their nutritious Juice ; and in fine, all the Misfortunes which follow a *Cacochylia*, or faulty Chylification. Accordingly we find, that studious Persons, though naturally of a jovial merry Temper, do, in Process of Time, become melancholy and heavy. We say commonly, that melancholic Persons are ingenious ; but we have more Reason to say, that ingenious People turn melancholic, the more spirituous Part of their Blood being consumed in the Exercise of the Mind, and only the earthy drossy Part left behind.

I do not deny, but that this Disorder may be considerably promoted by a Temperament of the Body which tends gradually to Melancholy, with a moderate Mixture of the other Humours. *Ficinus* *, in the Book he writ for the Benefit of studious Persons, gives several Reasons why learned Men grow melancholic, some of which he takes from natural Philosophy, and others from Astronomy, which was his chief Study ; but all of them depend upon the violent Motion and Dissipation of the animal Spirits, which makes the Blood black and thick. We conclude therefore, that learned Men are commonly subject to melancholic Disorders, especially if they are naturally of such a Constitution : And accordingly we find the thorough-paced Scholars are thin, lean, wan-coloured, morose, and Lovers of a solitary Life.

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They likewise Contract a Weakness of the Sight by degrees ; for they cannot read and write with an intent Posture of the Eyes, without injuring the Sight, especially if they write small, as quick-witted Men commonly do. *Aristotle* † has an curious Conjecture enough, if it were but true, upon the Question, why pur-blind Persons usually write small Letters ? *It is strange*, says he, *that those who are dim-sighted, should do that which the sharpest-sighted ought to do.* For this Practice of pur-blind Persons he brings several Reasons, and so does *Plempius* ‖, who says, “ He has sometimes “ doubted, whether it was not only a Sort of Aff- “ fection in such People as he thought quick- “ sighted.” But I know a great many such who write their Letters large enough ; though it is not to be doubted, but that those who accustom themselves to write small and fine, grow thereupon shorter sighted, and by degrees contract a *Myopia* : For by that Means the Eye is accustomed to see only such Objects as approach near to it, and by virtue of that Custom the *Retina* is confirmed, and hardened in a remoter Situation from the *Pupilla*, and so the Eye is robbed of the Mobility which Nature gave it.

Sometimes those who read and write much, are troubled with the Disorder which is opposite to a *Myopia*, so that in Process of Time they cannot see, unless the Object be held at a Distance from them : And this is familiar to old Men ; for since they write and read with their Head and Body bended forward, the Crystalline Humour readily falls forwards towards the *Pupilla*, and stops it up so as to cause a Blindness. Hence *Platerus* * gives this

† *Sec. 31. Prob. 8. and 16.*
thalm. c. 42.

‖ *Lib. 4. Op-
 * Tom. 1. Prax. med. c. 7.*

this as the Reason, why Horses and other Brutes are under Disorders of the Eyes more frequently than Men ; because, as they go with their Faces bowed to the Ground, the Humours of the Eyes are gradually carried forward, and there they settle.

Further hard Students, by Reading and Writing with their Head and Breast bent, compress the Stomach and *Pancreas*, by which Compression the Stomach is injured, and the Course of the pancreatic Juice through its Ducts is stopped, and thereupon the Oeconomy of the natural Viscera is disturbed. This intercepting of the pancreatic Juice, by such a Posture of the Body, is taken notice of by *Dolæus* †, as being very pernicious in hypochondriacal Cases. Nephritic and Arthritic Disorders the Followers of a sedentary Life, are likewise intailed upon the Learned : And we seldom meet with arthritic Persons, who are not likewise troubled with nephritic Disorders, not so much because their constant lying and sitting fatigues the Loins and Kidneys, as because the same is the material Cause of both Diseases. *Erasmus* *, in an Epistle to his arthritic Friend, after complaining heavily of his being tortured with the Stone in the Kidneys, adds, that he and his Friend were related, as being married to two Sisters, and that his Friend's Wife kept him Company, without the least Suspicion of Adultery.

Above all the Retainers to Learning, the bad Influence of Study and Fatigue falls heaviest upon the Writers of Books for the Public, who seek to immortalize their Names : By *Writers* I mean Authors of Merit ; for there are a great many, who,

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† *Enoyc. med.* l. 3. *de morb. abstem.* c. 11.
weron. de Ren. Calcul. l. 2.

* *Vid*

through an insatiable Itch of appearing in Public, patch up indigested Medleis, and make abortive rather than mature Productions ; not unlike some Poets who will compose an hundred Verses, *stantes pede in uno*, as *Horace* expresses it. Our wise and grave Authors, who take care of their Reputation and Credit for Ages to come, wear themselves out with toiling Night and Day, and sometimes fall a Sacrifice to Death before their Works appear. But they are not so much injured by Study, who only covet to know what others knew before them, and reckon it the best Way to make use of other People's Madness, as *Pliny* writes of those who would never build new Houses, but rather buy and live in those, which were built to their Hands by other Folks.

But now that I have mentioned *Pliny*, I cannot pass by a memorable Saying of his, relating to the Subject now before us *, the Explication of which has racked many a great Wit; *Atque etiam morbus est aliquis per sapientiam mori*, To die by Wisdom or Knowledge is a sort of a Disease. Every Critic has some peculiar Notion of the Disease here meant by *Pliny*.

The famous *Gaspar a Reies* in his *Jucundæ Quaestiones* † reckons up all the various Opinions of the Learned upon this Passage, particularly of *Mercatus*, *Mercurialis*, *Pineda*, *Salmasius*, *Dalechampius*, *Ludovicus della Cerda*, and others, where we find that some (particularly *Mercatus*) think *Pliny* speaks of dying in old Age, which challenges Prudence as its Property : Others, as *Pineda*, are of the Opinion, that he means a Quartan Fever, which, by a sort of Wisdom and intelligent Faculty, invades at set Days and Hours : Others alledge that the Text is corrupt, and that instead of *per sapientiam mori*, it should

* Lib. 7. H. N. c. 50.

† *Quaest.* 100.

should be *per deffipientiam mori* : Others again as *P. della Cerda*, conjecture, that he points to a Faculty of Prophefying, which some acquire upon their Death-bed, and so foretel what is to happen after their Death : And, in fine, *Gaspar a Reies* himself interprets it of a *Paraphrenitis*, upon a Wound or Contufion of the Diaphragm, as being that Part of the Body in which the Ancients feated Prudence.

If it be lawful to add my Sentiments to thofe of fo many great Men, I am of Opinion, that *Pliny* reckoning up the Dangers, Accidents, and Dif-eafes, which continually haunt our Life, had a mind to place in that Number an occasional Cause, which frequently is followed with Death ; which is, the Study of Wifdom or Learning, which of-times hurries its Votaries to an immature Death ; fo that in the Clafs of Dif-eafes there's one not taken notice of by Phyficians, *viz. per fapientiam mori.*

Here I cannot but quote that Golden Passage of *Plato**, in which he gives an admirable Account how the Study of Letters occasions various Dif-eafes. That divine Author having afferted, that the Beauty and Health of Mankind, lies in a certain mutual Moderation and Proportion between the Soul and the Body, proceeds to this Purpose. “ When
 “ the Soul is much more powerful than the Body,
 “ and is elevated within it, the Body trembles and
 “ languifhes : In like manner, when the Soul
 “ bends all its Force upon Speaking or making
 “ Discoveries, it quite difturbs and finks the Bo-
 “ dy. Again, when, by an ambitious Sort of
 “ Emulation, it difplays its Energy in Speaking
 “ and Difputing both privately and publicly, it
 “ inflames and unhinges the Body ; and fometimes,
 “ by

* In, Trin. p. 495.

“ by raising Defluxions and Rheums, it imposes
 “ upon Physicians, and puts them upon hunting;
 “ after contrary causes. ”

Thus it is that Men of Learning by excessive Application to Study, render their Bodies sickly and unfit for bearing the Motion of the Soul and the Spirits: For the Soul and the Body are linked together by such an inviolable Tie of Fellowship, that all the Good or Evil of the one redounds to the other: And as the violent Exercise of the Body makes the Soul droop and languish in the Performance of mental Functions; so, when the Soul is too eager in its Pursuit of Wisdom, the Body cannot but decay, by reason of the Consumption of the Spirits, which are the common Instrument for the right Performance both of material and spiritual Operations.

Labour, says the great Master of our Art*, is proper for the Joints, Food for the fleshy Parts, Sleep for the Viscera, Walking for the Soul, and Thinking for Men. Not to mention what Galen and Vallesius have advanced in their Comments upon this Place, I shall only observe, that, according to Hippocrates, Thought is the proper Exercise of the Soul: And since all studious Men are entirely taken up in Thought and Meditation, especially since some of our Moderns place the Essence of the Soul in Cogitation, it cannot be but that the Body, thus forsaken by its Guide and Ruler, should fall into Exorbitancies, and undergo several Disorders, particularly Distillations, as Plato calls them, a lazy Sluggishness of the Limbs, a wasting Consumption and an untimely old Age.

Such is the general Calamity of the Professors of Learning; but some of that Number are subject to
 Diseases

Diseases peculiar to their respective Professions, as Preachers, Philosophers who dispute continually in the Schools, Declaimers at the Bar, and all others whose Profession obliges them to exercise their Voice; for these are often subject to Defluxions and Ruptures of the Vessels in the Breast. Again, Advocates or Barristers, Judges and Servants of great Princes, being worn out with Study, and Watching, and vast Fatigues, lead the Van of the hypochondrical Tribe, and gradually decline to a Consumption. To *Fortunatus Plempius* his Book, *de Togatorum Valetudine Tuenda*, we have prefixed an admirable Epistle of *Petrus Xilander*, Counsellor to his *Catholic* Majesty in the Court of *Brabant*, in which that learned Lawyer describes the many Disorders and Miseries he had contracted by the Gown. For my own part I have observed, that all the famous Lawyers, and public Ministers, I have had occasion to know, either at the Court of *Rome*, or at the Courts of other Princes, were afflicted with a thousand sorts of Diseases, and cursed the Profession they were engaged in. However, considering that the above-mentioned Book of *Plempius* is very scarce in *Italy*, I thought it not improper to insert here that Letter of *Xilander's* which I know will be very acceptable to the Ministers of Princes.

To Vopiscus Fortunatus Plempius, Doctor of Physic, and first Professor in the University of Louvain, P. Xilander wisheth Health.

‘ SINCE your Request is so earnest, I am ready to comply with it, in relating the Infirmities and Obstacles of Health, which seem most to infest this active Life which I have led in the Town, that you may be able to give us more accurate Cautions and Cures in the Piece you are going to Publish *de Tuenda Valetudine Togatorum*.

‘ A Country-life is not only pleasanter and easier, but more healthful than a Life spent in Towns, in the Discharge of public Offices, which drags peculiar Diseases after it, as the North East Wind doth the Clouds. A Weakness of the Stomach, Cholic and nephritic Pains, and a Thousand other Things, which retain to these, are the peculiar Torture of our sedentary City-life; and if you can in your intended Work free us of these, you will mightily oblige the whole Order. However, the Source of all our Evils is easily traced; that which most injures us, is that lazy Custom of constant Sitting which is inseparable from our Profession. We sit whole Days like lame Cobblers, either at Home, or in the Courts of Justice. When the meanest Fellow in the Republic is either exercising his Body, or unbending his Mind, with inactive Ease, we must be sitting in the midst of Quarrels and wrangling Disputes. And though the Condition of all busy Men is miserable, yet those are most in Misery who have not Leisure

to mind their own Business. The Misery of being constantly teased with the Noise of the Bar is pleasantly set forth by *Claudius Cæsar* in the Play of *Seneca*, where, turning to *Hercules*, You know, says he, *what Misery I underwent when I heard the Lawyers plead ; if you had fallen in among them, notwithstanding all your Courage, you would rather have chosen to have cleansed Augeus's Stables.* But the Misery is, we sit not only in the Courts, but in the very public Streets.

It is an ugly Custom we have brought in of riding continually in Coaches ; if we did but walk the fourth Part of the Way we ride in a Day, the sedentary Fatigue might be discuss'd by the ambulatory Motion. But how can we help it ? Our Streets are so crouded with Coaches, that, unless we have a mind to be trod under Foot by the Coaches, or be bespattered with Dirt, we are forced to ride in Coaches in our own Defence. For the World is come to this pass, that we seem to have lost the use of our Feet, and doubtless you will think it will be of use to the Health of Mankind, to have that Use revived to its former Frequency.

Martial thought it no less than Madness for a young hale Man to walk through the Town upon borrowed Feet ; witness, the Epigram upon one *Philippus*.

*Octophoro sanus portatur, Avite, Philippus,
Hunc tu si sanum credas, Avite, Furis.*

But, to pursue the other Disadvantages which attend us : Our Gates are always beset with a Crowd of People ; the most quarrelsome Pettifoggers and Brawlers are always teasing us with their Noise, and redoubling their outrageous,

' gious Jargon of the Bar. Now *Seneca* says, he
 ' cannot be happy who is surrounded with a great
 ' many; for it fares with him as with a Lake
 ' which the Visitors are always disturbing and
 ' emptying. The most unreasonable Trouble we
 ' have, is to be called upon Business immediately
 ' after Dinner; then must we go and hear the
 ' Barristers wrangling Disputes.

' Your *Hippocrates* condemns all Study after
 ' Eating in those of a weak Stomach, in which
 ' Number are all those who are tied to Offices in
 ' Cities. What do you think of those turbulent
 ' contentious Disputes which always grate our
 ' Ears? Not to mention the continual Attention
 ' we are obliged to, not only in the Court, where
 ' we are surrounded with Business, but almost in
 ' all Companies. We can scarcely ever unbend
 ' and act a plain simple Part, but are always ob-
 ' liged to personate as it were and act under a Cha-
 ' racter, for the Nature of our Post and Office
 ' obliges us to a continual diligent Observation
 ' of our Steps.

' Now, as *Seneca* says, those who live under
 ' a Mask or Character, cannot live a pleasant
 ' Life; for the Pleasure of Life lies in that sincere
 ' and plain Simplicity which tacks no Appendage
 ' to its Actions. I reckon no body is ignorant,
 ' that Sadness and Grief is an Enemy both to
 ' Life and Health. As for our Way of Living, it
 ' has nothing singular toward either Extreams.

' A thin Diet is more proper perhaps for the
 ' Life we lead; for I do not think that *Celsus* writ
 ' for us when he said, That Men ought always to
 ' eat a great deal of Meat; for he subjoins the
 ' Caution, provided they can digest it; which
 ' cannot be applied to those, who call off the Heat

' of

of their Stomach every Hour to assist the Offices of the Mind.

I do not know any one of our Profession in this Place, who feasts high over his Books, as *Aloysius Cornarus* of old did among the *Venetians*, and *Marchio Malvechius* lately in *Holland*. Sometimes indeed we give Way to Jollity of Company, and cloud our Wisdom with Wine, without observing the nice Points of Sobriety. But how far these Adventures are to be avoided or allowed, we expect to be directed by you in your Precepts.

I know you will advise us, and justly indeed to exercise the Body, to walk and to travel, in order to correct what is thrown in superfluously, or faultily digested; you will recommend to us Chearfulness and the Unbending of the Mind, in order to dispel the Queaziness we have contracted, as *Seneca* likewise advises; you will direct us to indulge the Mind, and spare some leisure Hours which will serve instead of Aliment and Strength; to walk in open Places, and in a free Air, that the Mind may enlarge and raise itself by contemplating a Variety of Objects; and sometimes to ride or be carried in a Coach; to travel and change the Climate, these being apt to add Vigor to the Mind.

It is true, these Advices are all very reasonable, and Holy-days were appointed by public Authority for that End, that Men might be forced, as it were, to be chearful, and to unbend the Mind. But, pray consider the Hardship of our Condition, for we are like the Slaves who are never free from Work. Upon such Holy-days we change our Business indeed, but do not lay it aside. Then must we go Abroad and hear Depositions; or, if a Case could not be decided

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‘ in Court in the ordinary Days of Sitting, we are
 ‘ forced to give a Hearing at Home in the Holy-
 ‘ days.

‘ Then the Court of Vassalage claims a Right
 ‘ to Part of the Holy-days ; another Part is claimed
 ‘ by the delegated Causes, the Frequency of which
 ‘ is now restrained by a very wholesome Constitu-
 ‘ tion. There is always some Cross or other which
 ‘ takes up our Time.

‘ One of our Order applies to us that Character
 ‘ of *Euripides* ; *We are the Slaves of the Public, and*
 ‘ *our Lives are in the Hands of the People.* We
 ‘ have seen Men of the most robust and almost in-
 ‘ vincible Constitutions sink under the Burden of
 ‘ this Office upon the very first Approach of Old-
 ‘ age ; and it is but reasonable, that their Mis-
 ‘ fortune should teach us to be wise. We ought
 ‘ to allow an honest Retreat to Old-age, as being
 ‘ the only Holy-days of our Lives. We ought
 ‘ first to retrench some Part of our Business, and
 ‘ then, if possible, bid a total Farewel both to the
 ‘ Bench and to the Court. The first and the mid-
 ‘ ling Periods of our Age we sacrifice to the Pub-
 ‘ lic : And why should not the latter be bestowed
 ‘ upon ourselves ? No Man is born absolutely for
 ‘ another, who must die for himself. Let us be-
 ‘ gin, said the *Roman Sage*, to moor our Ships in
 ‘ Old-age. We have lived in Straits, let us die
 ‘ in a Harbour : Nay, the very Laws teach us as
 ‘ much, for they absolve a Senator and allow him
 ‘ to lay down his Gown in the Sixty-fifth Year of
 ‘ his Age.

‘ *Cæsar Augustus* pleased himself with nothing
 ‘ more than talking of the Prospect of Ease and
 ‘ Leisure in his Old-age, with the Hopes of which
 ‘ he mitigated all his Cares. But his Wishes went
 ‘ no further than his Words. Others have boast-
 ‘ ed

ed of the same Hopes among their Friends, and yet have coveted new Dignities in their Old-age, and at last, upon the View of Mortality, complained that they only courted a Title to their Grave.

Spurinna, the Friend of *Pliny the Younger*, acted with much more Prudence, who, after he had bore Magistracies and governed Provinces, founded a Retreat in his Old-age, and prolonged his Life for many Years by Ease and moderate Study.

Similis one of *Adrian's* Governors, after he was dismissed, lived seven Years in Peace and Quiet in the Country, and ordered the following Inscription to be put upon his Tomb: *Here lies Similis, who reckoned many Years of Age, but lived only seven.*

Our own Age affords us an eminent Example of this Kind in *Achilles Harley*, President of *France*, who chose rather to lay down such an ample Dignity in his Old-age, than to sink under it; and accordingly, in the seventy-seventh Year of his Age, he quitted all public Business, and retired to the Country to prepare himself for a better Life, by the Exercises of Christian Offices; and it pleased the Almighty to allow him a five Years Retreat, that his last Hour might not overtake him in the Hurry of his Business. The Death of this great Man is related more at large by *Gramont* in his History.

With such Examples and such Thoughts I sometimes please myself; and, when I am quite spent and worn out with Fatigue, I comfort myself as if I were already possessed of the Ease and Quiet I so much longed for.

‘ *O rus, quando ego te aspiciam, quandoque licebit*
 ‘ *Nunc veterum libris, nunc somno & inertibus horis*
 ‘ *Ducere sollicitæ jucunda oblivia vitæ.*

‘ But I perceive I have digressed too long.
 ‘ leave you therefore to call up your *Æsculapian*
 ‘ Spirit, and pursue the Province you have pitched
 ‘ upon, without giving yourself the Trouble of
 ‘ entering the Lists with the *Moligus’s*, *Hyperus’s*,
 ‘ *Horstius’s*, *Primerosius’s*, and such other obscure
 ‘ Men, who want to raise their Reputation by
 ‘ such Disputes, while they can neither add to
 ‘ nor detract from your Fame. You have out-
 ‘ stripped such Mushrooms very far long before
 ‘ now. I salute all the Collegiates who are my
 ‘ Friends.

‘ *Brussels, Jan. 2,*
 ‘ 1662.’

Such was the accurate and learned Account of
 the Miseries of this Sort of Life, which this great
 Lawyer gave to the greatest Physician of his Age;
 when he was about to publish that excellent Piece
 of his, *de Togatorum Valetudine Tuenda*: And in-
 deed I must own, that all the famous Lawyers and
 Ministers of State, whom ever I had Occasion to
 know, were all upon the same Strain.

The Physicians fare much better, I mean those
 of them who run about and visit their Patients,
 and mind chiefly the Practice of Physic, for they
 are not subject to such a Train of Diseases; and,
 if they happen to be ill, they owe their Illness not
 to a standing or sedentary Life, but to their con-
 stant Walking and Running about.

I have often wondered how it came to pass, that,
 when epidemical Diseases, such as malignant Fe-
 vers,

vers, Pleurifies and other popular Sicknesses, were raging all about, the Practitioners of Physic escaped free by a certain Privilege as it were tacked to their Profession: And, upon mature Consideration I am of Opinion, this good Luck is owing to their Caution, to their great Exercise, and to the Cheerfulness of their Mind, when they return with full Pockets from visiting their Patients. In earnest, I never observed the Physicians to be so much out of Order, as when no body else is sick: And this I have seen verified in a particular Manner these last five Years, which have been very healthy, without the Appearance of any epidemical Distemper.

However, Physicians do not always escape with Impunity; for I know a great many who have caught Ruptures by their constant Fatigue and climbing of Stairs. Besides, when Dysenteries are common they use to be dysenteric, which perhaps is owing to their sitting a long Time by the Patient, and receiving the morbidic *Miasma* at the Mouth, or any other Part; and for that Reason some are so cautious as only to stand, and avoid sitting or staying when they visit dysenteric Persons.

A long Train of Diseases is likewise entailed upon the Studies of Poets, Philologers, Divines, and, in fine, all Writers, and the other Retainers to Learning who are chiefly employed in the Functions of the Mind. Above all, it goes hardest with the Poets, who, by reason of the fantastic Ideas always present to their Minds both Night and Day, are timorous, morose and very lean, as their Aspects testify.

Our *Ariostus* confesses in his Satires, that he had a very meager Constitution; and, if you mind his Picture, his Face looks like the ghastly withered Face of an Hermit: And the Constitution of the
other

other celebrated Poets is said to have been the same.

It is said, that *Ludovicus Castelvetrus*, a famous Philologer, was so very thin and lean, that *Hannibal Carus*, his Rival, derided him under the Title of a meagre Goat. We read in History, that those who have a Superiority of Genius, and are cried up as great Masters of Wit, Ingenuity and Learning, are suddenly carried off by a certain evil Fate and Malignity of Fortune. *Picus*, justly admired for his Learning, died an immature Death at *Florence*, at 30 Years of Age, to the great Detriment of the Republic of Letters: And, though the Cause of his Death is variously related, it is generally believed, that it was occasioned by his perpetual Labour and sitting up all Nights; for one would wonder how he had Time to write any Thing, since he had read so many Authors, as appears from his Works which are extant.

The *Mathematicians*, whose Minds must of necessity be abstracted from the Senses, and cut off in a manner from all Commerce with the Body, in order to contemplate and demonstrate the abstruse Things which lie most remote from Matter, are almost all stupid, slothful, lethargic, and perfect Strangers to human Conversation, or the Business of the World. So that all the Parts of their Bodies must needs droop with a sluggish Stupidity, just as if they were chained up in perpetual Darkness. For, while the Mind is intent upon that sort of Study, all the animal Spirits retire to the Center and so none are spread abroad for the Benefit of the external Parts: That Saying of *Hippocrates* (* *Lux orco, Tenebræ Jovi*) being justly applicable to them; for, while the Spirits are employed in

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the inner Parts of the Brain, the external Parts cannot but droop and languish.

Upon the whole, considering how much the Health of wise and learned Men contributes to the Interest and Good of the Republic, it is proper that Means should be thought upon for preserving their Health as much as possible, and retrieving it when it is lost. For this end, we ought first of all to consult the Authors who have wrote on purpose for the promoting of their Health, as *Plutarch de Præceptis Salubribus*, *Marsilius Ficinus de Studiosorum Valetudine Tuenda*, and *Fortunatus Plempius* his applauded Piece *de Togatorum Valetudine Tuenda*. In these Authors we meet with very neat Prescriptions both for preventing and curing the Diseases they are usually subject to.

The chief Thing to be minded is a due Regimen in the use of the six Non-naturals. In the next Place they must take Care to live in a pure wholesome Air, at a distance from Lakes and Pools, and without being exposed to the South Winds: For by this Means the animal Spirits, the chief Instruments of intellectual Operations, will be the purer.

I have often wondered indeed, what could induce *Plato* to fix his academic Lectures at a Place not far from *Athens*, which was reckoned not only unhealthy but pestilential, unless it be that he had the same View with *Bernard Abbot of Clareval*, who chose to build his Monasteries in unhealthy Places, that the Monks being sickly and tender might be more obedient to the Rules of the House, and less addicted to Pleasure. But let *Plato's* Motive be what it will, undoubtedly the Spirits are blunted and clouded by a gross Air, and the happiest Genius's flourish in such Places as enjoy a purer and more temperate Air; as that of *Naples*, and that of *Athens* in antient Times; whereas the
Inhabi-

Inhabitants of *Bæotia*, where the Air was thick and foggy, were reckoned dull and heavy.

They ought likewise to go into the Country and breathe in a free Air; nay, it will be of use to them to diversify their Way of Living, by being sometimes in the Country and sometimes in Town, and so intermixing Company with Solitude, for the former makes us long to converse with ourselves, and the latter gives us a Relish for the Conversation of Mankind. They must take care not to expose themselves to high Southerly and Northerly Winds, and to guard their Body, especially the Head, from the Winter Cold.

Custom has now prevailed so far, that all sorts of Men, whether old or young, bald or well provided with Hair, make use of Periwigs like Cases for the Head. And indeed Experience teaches us, that Periwigs are a healthy and a seasonable Guard for the Head, when it becomes bald through Old-age, or any other Cause. Besides, I have advised a great many who were troubled with Defluxions upon the Throat and Teeth to wear Periwigs who found them an effectual Cure, insomuch that without them they had lost all their Teeth.

Neither is this sort of Cover for the Head a late or new Invention, for in antient Authors we find mention made of a *Petagus*, *Galerus* and *Galericulus*, which were Caps made of Skins with Hair sewed upon them, so as to imitate the natural Hair. Such Caps were used both by the Men and the Women to cover their Baldness, or their grey Hairs, or else by way of Ornament when they went abroad. Hence *Juvenal* * says of *Messalina* *Claudius's* Wife.

*Et nigrum flavo trinem abscondente galero,
Intravit calidum deteri Centone Lupanar.*

I reckon the Use of Periwigs very convenient and wholesome for Men of Learning, as being proper to guard the Head from the Injuries of the Air, especially in Winter; and, abating for those of Religious Orders, who by the Rules of their Order are prohibited to wear Periwigs, I find few of the learned Class, who have not good large Periwigs upon their Heads, when they walk along the Streets, with their Locks nicely frizled and curled, as *Plautus* † facetiously terms it. Add to this, that when a Man of Learning, though old and stooping to the Ground, sees himself in a Looking-glass, with his Face clean and close shaved, his Skin smooth and well washed, and his Periwig hanging snug about his Ears, he rejoices within himself, and cheers up under the Hopes of long Life.

In antient Times the Professors of Learning, especially the Philosophers, gloried in their long Beards and bald Pates, as being the Badges of Wisdom: But now the Tables are turned, and almost all the secular Professors are so neat and spruce when they walk abroad, that you can see neither Beard nor grey Hairs. This reminds me of that noted Saying of the *Ægyptian* Priest, in his Conference with *Solon* ‡: *O Solon! Solon! you Grecians are always young, and there never comes an old Man out of Greece.*

But we are not only taught by Experience, that such artificial Periwigs are very convenient and healthful for learned Men when they draw towards Old-age, for Reason suggests the same Thing.

O

And,

† *In Captiv.*‡ *Plat. in Tim.*

And, since the Providence of Nature has guarded the Heads of young Persons with thick Hair, since the very Children come from their Mothers Wombs with Hair upon their Heads, since young People who are warmed with the Vigour of Age are not annoyed with the Weight of their Hair, but find it easy and convenient, why should not old Men whose native Heat fails, provide for the Safety of their bald Skulls with an artificial Cover of Hair: rather than Caps of Leather or Silk? *Plempius* * writes, that *Marfilius Ficinus*, a Platonic Philosopher was so whimsical in the use of Caps, that he changed them several Times a Day, according as the Wind blew, or as the Air was hotter or colder; which was certainly a pernicious Custom. So that the Hair-covers or Periwigs are much preferable; considering that we are allowed to keep them on in Churches, and in the Presence of Princes.

As for the Diet of learned Men, let that Precept of *Hippocrates* be their Oracle, *Sanitatis Studium esse, non repleti Cibis*. They must take care not to cram their Bellies quite full, and abstain from Variety of Meat, for that uses to occasion bad Chyle, and excite Commotions in the Belly; according to those Verses of *Horace*,

————— *Cum simul assis*
Miscueris elixa, simul Conchyliis Turdis,
Dulcia se in Bilem vertent, Stomachoque tumultum
Lenta feret Pituita —————

So that the Stomach must be narrowly looked after, for fear it be remiss in its Functions, and so affect the whole Body. *Ficinus* recommends Cinnamon and the Use of aromatic Things for fortifying

tifying the Stomach. In the Age we now live in Chocolate is mightily in vogue among the learned World, as being comfortable to the Stomach and Spirits; and, considering that studious Persons are either naturally, or by acquired Habit, melancholic and abound with Acidity, these balsamic and spirituous Potions may serve to correct the Acidity both of the Stomach and the Blood, and amend their Constitution.

As for their Drink, Wine is preferable to all other Liquors; I mean pure Wine drank in small Quantities. I know very well, that a great many learned Men, who want to wash their Throat plentifully, make use of small White Wines by the Consent and Advice of their Physicians, presuming they may drink of these safely, and to what Quantity they will. But this Practice is not so safe as they imagine; for these small Wines assume a sort of Acidity, especially in Summer, and nothing can be more pernicious than that, to such Constitutions as labour under a luxuriant Acid.

Crato says *, *Those who have a weak Stomach had better drink a little Hungarian or Malmsey Wine, than swallow great Quantities of small Wines.* And *Helmont* † says, those small Wines contain a great deal of Vinegar, and but little Wine. It is manifest therefore, that studious Persons, subject to arthritic Pains, cholic Pains, and hypochondriacal Disorders, all which take Rise from a morbid Acid, ought by no means to make use of Acids, but to have recourse to such Things as break and enervate the Acid.

In regulating their Conduct as to other things, they ought to avoid the Inconveniencies of a seden-

* Lib. 2. Conf. 27.

† In Volup. niv.

tary and a standing Life, to exercise the Body moderately every Day, provided the Air be clean and calm ; to make frequent Use of soft Frixions for preserving and promoting Perspiration ; and bathe in sweet Water, especially in Summer, which time they are most apt to be choleric ; for by that Means the Acrimony of the Humours corrected, and the rough Viscera are softened. The most convenient Time for bathing is the Evening ; after which it would be proper to eat and so go to Bed ; for such was the Custom among the Antients : And accordingly *Homer* says,

Ut lavit, sumpsitque cibum dat membra sopori.

The Morning is usually recommended as the most convenient Time for Study, as the Night Hours and especially those after Supper, are improper for that Exercise. *It is a monstrous Way, says Ficinus * to sit up late at Nights, and so to be forced to lie in Bed after the Sun rise ;* and this he says is the Fault of many Students ; the Perniciousness of which he confirms by several Reasons ; some drawn from the Position and Configuration of the Planets, others from the Motion of the Elements, while the Air thickens upon the Setting of the Sun ; others from the Humours themselves, Melancholy being most prevalent at Night ; and others again from the Order of the Universe, by which the Day is appointed for Labour, and the Night for Rest. So that learned Men, who pursue their Studies in the Night-time, act in Opposition to all these Arguments.

But, in adjusting this Matter, a due Regard must be had to every one's Use and Custom ; on

* *De Stud. Val. etud. l. 1. c. 7.*

ly *Celsus's* Caution * must always be minded, which is, that they ought not to study immediately after Eating, but after the Concoction is over. The eminent Cardinal *Sfortia Pallavicinus*, a Man of great Learning, used to dedicate the whole Day to his Study without Eating, after which he eat a little Supper, and, laying aside his Studies, set apart the whole Night for Sleep, and the Repairing of his Strength.

But, after all, there are some Men who prefer the Night to the Day, and account the secret Recesses and Silence of the Night more favourable for Study. *Gellius* writes †, that *Euripides*, the Author of the Tragedies, used, when he was composing any Tragedy, to mew himself up in some dark dismal Cave in the Island of *Salamina*. In like manner ‡ *Demosthenes*, that great Orator, used to retire to a Place where he could neither see nor hear any thing, for fear his Eyes should divert his Mind.

When we apply ourselves to Study, we ought not to sit in little close Cells or Closets as some do, especially in Winter to avoid the Cold, but in a large Room, provided the Body be well covered with Clothes; for the Smoak of the Lamp or Candle, as well as the Exhalations which fly continually from the Body and the Mouth, quickly fill up a narrow Space, and render the Air not only unfit for Respiration, but even hurtful, and withal affect the Head, especially if we use Tallow Candles, which, by their Stink and smoaky Exhalation, taint the Stomach and the anterior Ventricles of the Brain, as *Plempius* observes in his admirable Piece *de Togatorum Valetudine Tuenda*.

O 3 To

* Lib. 1. c. 2. † Lib. 15. c. 20.

‡ *Quintil. li 10. Instit. de Mod. scrib.*

To this Purpose is that Oracle of *Hippocrates* *, in which he commends sleeping in *frigore cooperto*, which the learned *Vallesius* makes to import, that it is more conducive to Health to sleep in a large Room with the Body well covered up, by Reason of the Inspiration of purer Air : And by a Parity of Reason, I reckon it more conducive to the Health of studious Persons to study, in a larger than a little Room or Closet, notwithstanding the Winter Cold, provided they are *cooperti* as *Hippocrates* says.

When learned Men are taken ill of the above-mentioned Diseases, such as nephritic, colic and arthritic Pains, which are the Plagues of Students, they must have recourse to such Remedies as are calculated for these Distempers, of which they may meet with great Store in all practical Authors, it being contrary to our Design to swell this Treatise with Receipts. However, I cannot forbear to mention a new Remedy lately found out for the Colic, or arthritic Pains, called the *Sugar of Milk*, invented by the excellent Dr. *Testi*, a Physician at *Venice*, and recommended by successful Experiments ; of which there was a Book published in the Year 1698, at *Venice*.

Because learned Men are generally peevish and morose, and oftentimes importune the Physicians to prescribe them Remedies, particularly Purgatives and Phlebotomy, I shall here communicate what Experience and Observation has taught me in this important Matter. I know by Experience, that learned Men bear even strong and repeated Purgation better than Bleeding, though it be done but sparingly. And this Observation is backed by Reason : For, since their Stomach abounds with acid

acid Crudities, by reason of their restless Nights, of the Intemperance of their Studies, and the with-drawing of the Spirits to other Parts, cathartic Medicines, though of the stronger Form, are enervated by that luxuriant Acid, and if they are too mild they rather excite Commotions than make any Evacuation: But upon all these Accounts a Physician must be very cautious in weighing maturely the Habit, Strength, and Disease of the Patient.

The same Thing is observed in Children, in whom the Redundancy of an Acid often eludes strong Purgatives: For it is well known, that nothing impairs the Alkaline Force of Cathartics so effectually, as what is obtained from acid Substances.

As for Bleeding, though in small Quantity, it cannot but impair their Strength, and easily sinks the Spirits which are already palled with Watching and the Fatigue of Study. We read in the Life of *Gastendus*, that this Famous Philosopher was killed by the repeated Phlebotomy, which is so customary among the *French*.

It is remarkable, that the learned Men of Religious Orders, who are of thin, sickly Constitutions, use frequently to purge and vomit with the Powder of *Cornachina*, *emetic Wine*, and the like, and that to some Advantage: But they tremble when you talk to them of Bleeding; for they know very well, that what affects them is a Load of Humours lodged in the Stomach, that the vital Strength of the Blood is languid and palled.

The Professors of Learning ought therefore to pursue the Study of Wisdom with Moderation and Conduct, and not to be so eager upon the Improvement of their Mind, as to neglect the Body: They ought to keep an even Balance, so that the

Soul and the Body may like Landlord and Guest observe the due Measures of Hospitality, and do mutual Offices, and not trample one another under Foot.

It is a pleasant and witty Saying which *Plutarch* tells us *Democritus* * used to have, ‘ That if the Body and the Soul were to sue one another for Damages, it would be a doubtful Question whether the Landlord or the Guest were most faulty.’ And indeed we seldom find a just Moderation between them ; for if we are too intent upon strengthening the Body, by cramming it, we bring the Soul to the Ground ; and if, on the other hand, we bend all our Force upon the Improvements and Ornaments of the Mind, the Body wastes and decays : So that *Plato’s* Caution is very just, which is, *That we ought not to exercise the Body without the Soul, nor the Soul without the Body.* I shall conclude this Chapter with a pleasant and smart Passage of *Plutarch* in his Book *de Præceptis Salubribus*, which he writ, as he declares himself for the Benefit of studious Persons and Politicians : ‘ The Ox said to his fellow Servant the Camel, which refused to bear part of his Burden, *In a little Time it will be your Turn to carry all my Burden instead of a part* : Which accordingly came to pass upon the Death of the Ox.’ Now the same is the Case of the Soul, which refuses to unbend and allow the Body the Relaxation and Ease it requires, and soon after, upon the Invasion of a Fever, or Vertigo, the Books, Disputations, and Studies are all laid aside, and the Soul is forced to labour under Sickneſs along with the Body.

* *De Præcep. salub.*

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S U P P L E M E N T.

C H A P. I.

Of the Diseases of PRINTERS.

TIS sufficiently certain, that the Antients were unacquainted with the Art of Printing, since they only recorded Facts, and transmitted Events to Posterity, by means of Writers and Amanuenses; for Printing was only invented in the fourteenth Century, to the great Detriment of vast Numbers of Men, and especially of the Monks, who after Divine Service employ'd their Time in transcribing Copies for the Use of the Virtuosi and Literati. The Art of Printing is still unknown in *Turky*; and *Cornelius Magnus*, who travell'd through the Eastern Countries, informs us in his Letters, that when a Motion was made for introducing it in the Divan at *Constantinople*, a popular Insurrection was like to have happen'd. Various Arguments may be adduced both for and against Printing; and the ingenious *Boccalini*, in his Novelties of *Parnassus*, tells us, that when the Inventor of Printing haughtily appeared upon Mount *Parnassus*, demanding a Place among the Literati, he was repulsed with Infamy as a Corrupter of useful Arts and Sciences. But without any farther Enquiry into the Origin and Progress of this Art, we shall proceed to consider the Diseases incident to those who profess it.

Printers then are distinguish'd into two Classes, namely, *Compositors*, who without almost moving set the Types, and after the Form is work'd off, distribute the Letters into their proper Boxes; and *Press-men*, who continually stand. The former are subject to all the Diseases incident to a sedentary Life, and the latter afflicted with all the Disorders produced by standing and excessive Labour; for by working at the Press the whole Body is violently exercised: So that Press-men are not only subject to Lassitudes and Fatigues, but also obliged to quit their Business when they become old. The Compositors also, by having their Eyes perpetually fix'd on the black Types, contract a Weakness of Sight, and become subject to Cataracts and other Disorders of the Eyes. I know two Brothers, Printers, with Eyes naturally large and prominent, who were forced to quit the Business lest they should become blind. I also remember, that, by sitting some Hours with a Printer in order to correct a Work of my own, when I went out of the Printing-house, I perceived the Types as it were fluctuating before my Eyes, and even in the Night-time had the Images of them represented to my Imagination, because I had view'd them so long, and with so much Attention. By having the Eyes continually fixed then upon the black Types, whether in composing or distributing Letter, the Tone of the Membranes and Fibres of the Eye, and especially of the Pupil, is greatly weaken'd; so that 'tis no wonder Printers should be subject to Disorders of the Eyes. The Compositors themselves inform us, that when they come abroad at Night, after working the whole Day, the Images of the Types seem to be imprinted

imprinted on their Imaginations, and there remain for some Hours, till they are effaced by the Representations of other Objects.

Besides the Diseases of the Eyes, Printers are also subject to other Misfortunes, such as continual Fevers, Pleurifies, Peripneumonies, and other Diseases of the Breast; for as Printers are in the Winter-time confin'd for whole Days in close Places, and often exposed to excessive Heats in drying the Paper, when they come abroad in the cold Air, their Skin is easily constricted, Perspiration obstructed, and the above-mentioned Disorders brought on, especially in Press-men; for as their Business requires great Efforts of the Arms and whole Body, they are frequently cover'd with profuse Sweats, and in that Condition expose themselves to the cold Air, in consequence of which they are very subject to these Disorders.

The most proper Expedient Printers can use for the Preservation of Health, is to allot a few Hours of each Day for some salutary Exercise, and to be warmly cloth'd when they go abroad in the Winter-time. Compositors ought also to use Spectacles, in order to preserve the Tone of the Eye, to turn their Sight frequently off the Types, and gently rub their Eyes, in order to rouse their languid Spirits, and to wash them with Water of Eye-bright, and others of a like Nature. When Printers are seiz'd with acute Disorders, they are to be remov'd by the Remedies adapted to their peculiar Natures and Causes; only 'tis an Advantage to the Physician to know, whether the Patient has work'd at the Case or the Press.

C H A P. II.

*Of the Diseases of WRITERS and
AMANUENSES.*

TH^O' Writers and Amanuenses were far more numerous among the Antients, who were ignorant of the Art of Printing, than at present; yet 'tis certain that in each City and Town, vast Numbers of Persons still earn their Bread by writing. The Diseases of Persons incident to this Class, arise from three Causes; first, constant Sitting; secondly, the perpetual Motion of the Hand in the same manner; and thirdly, the Attention and Application of the Mind. Now 'tis certain that constant sitting produces Obstructions of all the Viscera, especially of the Liver and Spleen, Crudities of the Stomach, a Torpor of the Leggs, a languid Motion of the refluent Blood and Cachexies. In a word, Writers are depriv'd of all the Advantages arising from moderate and salutary Exercise. Constant writing also considerably fatigues the Hand and whole Arm, on account of the continual and almost tense Tension of the Muscles and Tendons. I knew a Man, who, by perpetual writing, began first to complain of an excessive Weariness of his whole right Arm, which could be remov'd by no Medicines, and was at last succeeded by a perfect Palsy of the whole Arm. That he might sustain as little Loss as possible by that Accident, he learn'd to write with his left Hand, which was soon after seiz'd with the same Disorder. But
what

what is worst of all, is, the continual and intense Application of Mind ; for in writing, the whole Brain with its Nerves and Fibres are highly tense, and a Privation of their due Tone succeeds. Hence arise Cephalalgies, Stuffings of the Head, Hoarseness, and Defluxions of the Eyes, produced by continually looking on the Paper. These Misfortunes are principally incident to Philosophers, Arithmeticians, Merchants Clerks, and Secretaries, whose Minds are often perplex'd with a Multitude of Letters, and the variety of the Subjects on which they write.

In order to repair the Damages sustain'd by a sedentary Life, Writers ought to use moderate Exercise as often as their Situation will permit. Nothing is also more beneficial for such Persons, than frequent Frictions ; which, as *Celsus* in *lib. 2. cap. 14.* tells us from *Hippocrates in Chir. Offic. N^o. 11.* produce contrary Effects. “ If, says he, “ the Friction is violent, it indurates the Body ; “ if gentle, it softens it ; if long continued, diminishes it ; but if moderate, augments and “ enlarges it.” If the Signs of a beginning Obstruction of the Viscera appear, 'tis expedient to purge with some Laxative, and in the Spring and Autumn to make universal Evacuations. In order to prevent or remove the Weariness of the right Arm and Hand, nothing is more proper than gentle Frictions with Oil of sweet Almonds, to which a small Quantity of Aqua-vitæ may be added. In the Winter-time Writers are to take care that their Hands be not render'd torped by the intense Cold, for which Reason they ought to wear warm Gloves. In order to preserve the Head from the Misfortunes to which it is subject, I recommend all Cephalics, especially those pos-

fects'd of a volatile Salt, such as Spirit of Sal-ammoniac, the Smell of which alone is capable of removing the Torpor of the Brain, which is also to be purg'd. Proper Doses of the *Pilulæ Cratonis* are to be exhibited, and Masticatories and Ptarmic Substances used; which, by exciting Sternutation, drive the serous Humours from the Glands of the Brain. Among the Masticatories, Tobacco moderately used is highly beneficial. The Body is to be kept soluble by soft Aliments, and if these don't produce the desired Effect, laxative Clysters are to be injected; for, according to *Hippocrates in 6 Epidem*, "Constipation produces
 " universal Confusion, a sordid State of the
 " Vessels, and the Consumption of the Brain."

C H A P. III.

Of the Diseases of CONFECTIONERS.

TH^O' recent Fruits, sweet Almonds, Pistachio-Nuts, Pine-Apples, and various Seeds, such as those of Fennel, Coriander and Worm-seed, preserved with Sugar, are sufficiently grateful to those for whom they are prepar'd; yet various considerable Disorders are brought upon the Persons employ'd in this Work, in which a large Brass Pan is suspended by Ropes over a Stove full of live Charcoals; so that the Person who agitates this Pan must have his whole Face above the Heat and the exhaling Spirits, and if he works constantly, becomes subject to Cephalalgias, Pains of the Eyes, and Difficulty of Breathing.

Three

Three Things are principally injurious to Confectioners, the Charcoal, the hot Pan, and the Sugar; with respect to the first, *St. Augustine in lib. de Civitate Dei*, speaks in the following manner; “Charcoals are of a surprizing Nature, since
 “they are so weak as to be broken by the gentlest
 “Stroke, or moulder’d down by the slightest
 “Pressure, and yet so strong that they cannot be
 “corrupted by any Liquor, or consum’d by any
 “length of Time; so that to prevent Disputes,
 “’tis customary to strew them on Ground in order to ascertain particular Boundaries.” But still more surprizing is the pestilential Quality by which their Smoak almost in a Moment destroys Persons Lives, unless they get out of it. Tho’ we cannot account for this suffocative Quality of Charcoal, since other Coals, even in a close Place, do not produce the same Effect, there are however many fatal Instances of its pestilential Virulence. *Helmont in lib. de jure Duumviratus*, tells us, that in the Winter-time when he was writing in his Chamber, he was so affected with the Smoak of some Charcoal brought in a Stove, that he could hardly get out of the Room, and soon after fell down half dead. The same Author, for the Production of this Effect, accuses something of a wild and incoercible Nature latent in the Charcoal, and exhaled by a certain inflammable Principle there concentrated. The Pan in which the Substances to be confectioned are contain’d, retains the Qualities of the Copper, since Brass is made of Copper and Lapis Calaminoris. This Vessel then, when heated, diffuses its contain’d Acrimony, to which the Confectioners are exposed. The melted Sugar also has its corrosive Exhalations rais’d, which are the more acrid, be-

cause the Sugar is very white, and purified with Lime-Water. These three Things therefore conspire to induce upon Confectioners violent Disorders of the Brain, Breast and Eyes; for the Head is afflicted with a violent Pain, the Eyes are often inflamed, and prick'd as it were with Darts, by the Exhalations of the Fire, and Respiration is injured by the acrid Particles contain'd in the inspir'd Air. Confectioners ought therefore, if possible, to work at their Business in an open Place, for the Dissipation of the corrupted Air, and to spend some Hours a-day in taking the fresh Air, after washing their Faces with Water, and their Fauces with Roses. In order to correct the Malignity of the Charcoals, 'tis customary with most Confectioners to put a piece of Iron among them, since they perhaps suppose that the malignant Spirits of the Charcoal exert their Force on the Iron, or that the Iron absorbs them.

C H A P IV.

Of the Diseases of Men and Women employed in Weaving.

THE Use or rather the Necessity of Weaving is evinced from this, that the Inhabitants of most Nations lie under a Necessity of using some woven Substance in order to cover their Nakedness; nor ought we to reflect upon Providence for having given Birds Feathers, and most other brute Animals Hairs as a Covering and Defence, since in Man this Defect is supplied by Ingenuity, and

and the Use of the Hands, by which he can provide various Kinds of Garments, both for Ornament and Use. Formerly Weaving was most commonly the Task of the Women, so that Ladies of Distinction were not ashamed of being employ'd in this Work. Thus *Penelope*, in the Absence of *Ulysses*, is said to have deceived her Suitors by weaving and unweaving a Web. Thus also *Virgil*, in *Æneid lib. 2.* when describing the Funeral of *Pallas*, mentions two embroider'd Cloaks produced by *Æneas*, and

*Quas illi Læta laborum,
Ipsa suis quondam manibus Sidonia Dido
Fecerat, & tenui telas discreverat auro.*

But at present the Vulgar are only employ'd in weaving, and Women of Distinction never learn more than the Art of Embroidery and working Flowers with the Needle. *Octavius Ferrarius*, in *lib. re Vestiaria*, informs us, that there were two kinds of Weaving, the one far more ancient than the other, in which the Women in a standing Posture wove upwards and to the Height; and the other, in which in a sitting Posture they wove downwards, which he says was the Invention of the *Ægyptians*, who thrust the Shuttle downwards, or drew it towards their Breast. At present the Women weave sitting, tho' they are sometimes observ'd to stand. This is certainly laborious Work, since it at once employs both Hands, Arms, Feet, Back, and all the other Parts of the Body. The Countrywomen in the Winter-time, when not employ'd in tilling the Ground, weave Linnen or Flaxen Webs; and it is reckon'd scandalous for an unmarried Woman

to be ignorant of this Art, which is generally the whole of the Portion her Husband receives with her. Weaving is then an hard and laborious Task, especially to Women, who, if pregnant, easily have Abortion, and a Train of subsequent Calamities brought on by that Means. Women therefore employed in weaving ought to be vigorous, healthy and robust, otherwise they succumb to the hard Labour, and are in their old Age forced to quit it. But besides the Profits of weaving, Women generally reap this Advantage from it, that their Menstruation is easy; for it rarely happens that Women thus employ'd have their Menses suppress'd, but rather have them discharg'd too copiously, when they work too hard about the Time of their Approach; so that when young Women complain to me of the irregular or inordinate Discharge of their Menses, I generally advise them to consult with working Women, or those employ'd in weaving, rather than with Physicians. Since these Women, fond of earning as much as possible, go to work immediately after their Meals, they must greatly injure the Stomach and Concoction; for by the excessive and intense Labour, the Fermentation is disturb'd, an imperfect Chyle forced into the Lacteals, and the Mass of Blood fill'd with Crudities. Weavers, unless very strong and robust, are also generally much afflicted with Lassitudes of the whole Body, especially of the Arms, Back and Legs; for in weaving broad Cloth, two Men are employ'd in thrusting the Speel back and fore to each other, and then pushing home the Shuttle. But Linnen and Silk Weavers are exempted from one Disadvantage to which Cloth Weavers are subjected, and which arises from the ungrateful Smell of the Oil

with

with which the Wool is moisten'd. Thus their Noses smell strong, their Breath sometimes stinks, and their Eyes become red, which also happens to all those employ'd in handling Wool moisten'd with Oil.

Weavers of all kinds, for the Preservation of Health, ought to work but moderately, and not to Excess; and in order to remove the Weariness, gentle Frictions of the Thighs, Legs and Arms, with Oil of sweet Almonds, are to be used. Cloth Weavers ought also to keep themselves as clean as possible, and on holy Days at least to put on clean Linnen, and wash their Hands, Arms and Legs, with perfum'd Wines. As for the Shearers of the Cloth, whose Business is also very laborious, especially to the Arms and Hands, they are to preserve Health, and prevent Diseases, by the same Means recommended for the Weavers.

C H A P. V.

Of the Diseases of BRASIERS.

AMONG the various Metals dug out of the Bowels of the Earth, Iron and Brass are of most general Use, since they are employ'd to far more numerous Purposes in Life than Silver or Gold. Thus the *Mexicans*, to whom Nature, instead of Iron and Brass, has given Gold and Silver, are said to have envy'd the *Europeans* who fought with Weapons of Iron and Steel. Brass then was greatly used, even in the earliest Times, as we find from *Athenæus*, who tells us, that *Plato* and *Lycurgus* in their Republics, decreed,

P 6

that

that no other Metals were necessary to human Life, except Iron and Brass, of the latter of which Money was coin'd. But we here consider the Diseases incident to Brasiers, and not those to which Persons who work in Brass Mines are subject, since these are already treated. In every City almost then, Brasiers are employ'd from Morning till Night, in hammering the Brass, and rendering it ductile, for making various kinds of Vessels and Utensils. By this continual and loud Noise, not only their Ears, but also their whole Heads, are greatly affected; so that Brasiers are generally dull of Hearing, and when they become old for the most part totally deaf; for the Drum of the Ear, by the continual Action of the Sound and Noise upon it, loses its natural Tension, and the Repercussion of the internal Air on the Sides of the auditory Passage greatly weakens and spoils the Organs of Hearing. The like Misfortune is said to happen to those who live near the Cataracts of the River *Nile* in *Egypt*, since they are all render'd deaf by the Noise of the falling Water. Brasiers and Gold-beaters also become gibbous, in consequence of the crooked Posture in which they continually sit.

Besides these Disorders of the Head and Ears, Brasiers are also subject to violent Diseases of the Stomach and Lungs; for whilst they hammer the Brass, noxious Effluvia arise from it, and enter their Mouths, Stomachs and Lungs, as they themselves confess. Various Medicines are prepared of Brass, such as Flowers of Brass, Filings of Brass and Verdigrease, all of which are possess'd of an emetic and corrosive Quality. The corrosive and drying Quality of the Brass is therefore perceiv'd by Brasiers, when they inspire it with the common Air. Persons of this Profes-

sion

sion inform me, that these noxious Exhalations produce no Disorders of the Eyes, which is agreeable to the Assertion of *Macrobius*, who tells us, that Lippitudes and Inflammations of the Eyes are cured by working in Brass Mines; for which Reason 'tis customary with some Persons to prepare Collyviums with Brass.

The Ears may be fill'd with Cotton, in order to hinder their internal Parts from being injur'd by the Noise; and when they are weaken'd and concuss'd, they may be anointed with Oil of sweet Almonds. As for the Disorders of the Lungs produced by inspiring the Air impregnated with the Metallic Exhalations, they are most effectually remov'd by Emulsions of sweet Almonds, or of Melon and Gourd Seeds, in Water of Violets, or Barley-Water. Whey and Milk Meats are also recommended for the same Purpose. But if a Brasier is naturally of a dry Constitution, and subject to Disorders of the Lungs, nothing is more expedient than his quitting the Business and applying to some other; for Gain ought never to be preferr'd to Health and Life. When a Brasier is seiz'd with any acute Disorder, such as a Fever, it will be of Advantage to the Physician to know the Patient's Profession; for as in acute Fevers a Ringing of the Ears often happens, the Physician ought not to be terrified at this Symptom, because *Hippocrates* makes it a fatal Sign; for it is not surprising, that, in a Tradesman of this kind, an uncommon Dulness of Hearing, and Ringing of the Ears should be observ'd: For which Reason the Physician is immediately to attempt the Cure of the Disorders of the Lungs by copious and moistening Emulsions, lest the
Dryness

Dryness of the Patient's Habit should be augmented by the Violence of the Fever.

CH A P. VI.

Of the Diseases of Carpenters, Joiners, and other Persons who work in Wood.

IF we except Corn, Nature has bestow'd nothing more useful upon Mortals than Trees and Woods; so that *Pliny in Præf. ad lib. 12.* tells us, "That the first Aliments consisted of their softer Leaves, and the first Garments were prepared of their Barks." But after the Use of the Saw was invented, Trees were cut into Boards, for the building of Houses, and a thousand other Purposes in Life. That the whole Town of *Lyons in France* was formerly built entirely of Wood, is not improbable; for *Seneca* informs us, that it was totally burnt in one Night; so that next Morning the Country People in the Neighbourhood missing it, were surprized what was become of it; and *Seneca* on this Occasion commiserating the Calamities incident to Mankind, exclaims, *diu Sylva, momento Cinis!* The Town which had long been a Wood, was in a Moment laid in Ashes. And even at present in some northerly Countries whole Towns are built of Wood: Thus in *Muscovy*, for instance, there are immensely large Shops fill'd with finish'd Wooden Houses of all Sizes, according to the Purchaser's Taste; so that a Person may there have a compleat House in a few Days convey'd to the Situation he intends.

Tho'

Tho' the Workers in Wood are distributed into various Classes, such as Coach-makers, Coopers, Ship-Carpenters and Carvers; yet in general all these Branches are laborious, and none of them more so than that of Sawing, which, by *Hippocrates in lib. 1. de Diæta*, is elegantly describ'd in the following Manner; " In sawing
" Wood one Man draws and another protrudes
" the Saw reciprocally; and the Man who is
" undermost, by drawing downwards, assists the
" Protrusion of him who is uppermost, otherwise the Saw would not go downwards; but
" if they use too much Violence, they mangle
" and spoil their Work." The uppermost Person has the most laborious Part of the Work, since he must continually draw up a large and weighty Saw; whereas the undermost Person sustains a considerable Loss by the continual falling of the Saw-dust into his Eyes and Mouth. Hence arise a Redness and Pain of the Eyes, for such Persons are oblig'd to wink almost continually.

Turners also, especially those who work on the Box, the Olive, or the Turpentine Trees, find their Business very laborious, since with their Hands and Arms they are continually oblig'd to hold and direct the Chissel, whilst their right Foot and Leg are no less perpetually employ'd in turning round the Wood. They must also have their Eyes constantly and attentively fix'd on their Work, by which Means they are considerably injured, since by the Circumgyration of the Wood, their Spirits and Humours contract a kind of vertiginous Motion. Carpenters and Joiners receive almost no Harm from the Matter on which they work, except from the Cyprus Wood,

Wood, the disagreeable Smell of which in some produces an intense Pain of the Head.

The best Advice I can give to Tradesmen of this kind, in order to prevent Diseases, is, not to overwork themselves, and by that means bring on Disorders which may for a long time incapacitate them for their Business. Soft Frictions with Oil are also salutary for Carpenters, and all other Tradesmen fatigued with excessive Labour. They are also to preserve and defend their Sight, by frequent Intermissions from Labour; and if their Eyes should be seiz'd with a Pain or Redness, they are to be wash'd with temperate Substances, such as Barley-water, Water of Violets, and Women's Milk. When Carpenters are seiz'd with acute Diseases from other Causes, the more powerful and efficacious Remedies are to be exhibited with the same Cautions, as to other Tradesmen whose Strength is exhausted by excessive Labour.

C H A P. VII.

Of the Diseases of CUTLERS and RAZOR-MAKERS.

I AM of Opinion, that most Arts, in some Degree or other, injure their Professors. Thus 'tis certain from Experience that Sword-Cutlers and the Makers of Razors and Lancets, by continually and attentively fixing their Eyes upon the Grindstone, which is turn'd round with excessive Velocity, have the Tone of their Eyes impair'd, and in Process of Time their Sight render'd

der'd dull. Some of them also, especially those who have weak Heads, are, after working a whole Day, not only subject to vertiginous Disorders, but also imagine that they see the Stone turning before their Eyes. 'Tis probable, that by this external and occasional Cause the Humours of the Eye, especially the aqueous, which is naturally moveable, and the animal Spirits are put into a gyratory Motion, by which means the natural Oeconomy of the Eye is perverted. I knew a skilful Razor-Maker, who, after working for a whole Day, was generally afflicted with violent Inflammations and Redness of the Eyes, nor could he charge this Misfortune upon any other Cause or Circumstance than his Business. I afterwards convers'd with other Tradesmen of the same Class, who all complain'd of Disorders of the Eyes. 'Tis also a considerable Labour with the right Foot, to turn the Wheel which conveys the same Motion to the Stone, but most of them have now freed themselves from this Piece of Fatigue, by employing Boys or Men for this Purpose. Their Hands however and Arms must contract a considerable Lassitude, by being so constantly employ'd; but no Parts of their Bodies are more injur'd than their Eyes, so that they ought to have frequent Intermissions from Work, and use the same Methods of Preservation recommended for Watch-Makers and other Tradesmen, who work upon small and minute Objects.

C H A P. VIII.

Of the Diseases of BRICK-MAKERS.

'TIS sufficiently credible that the first Men had not Houses erected by Art and Industry, since, according to the Poet,

—————*Frigida parvas
Præberet spelunca domos, ignemq; laremq;
Et pecus & dominos communi clauderet umbra.*

But afterwards Shades were made of Reeds and Straw; but these not answering the End, Cottages were erected of Stone and Mortar, and cover'd with broad Fleaks of Stone: Some of these are still to be seen in wild and mountainous Places. But as in plain and inland Places, Stones could not be found for erecting Houses, Bricks were invented for that Purpose. Brick-making then is an highly servile and laborious Work, and as such was imposed upon the *Israelites* in *Egypt*. We shall therefore consider the Disorders incident to Brick-Makers. As this Class of Men first expose themselves to the Heat of the Sun in forming the Bricks, and then to a greater Heat in laying them in the Furnaces, their Bodies must necessarily be dry and indurated, in consequence of which they are highly subject to acute Disorders, such as malignant, and frequently inflammatory Fevers; for as they are expos'd to all the Injuries of the Weather, to Cold in the Morning, to Heat

Heat in the Middle of the Day, are often wet with Rain, and live on coarse Aliments, 'tis no Wonder they should be subject to violent Disorders; on the contrary, 'tis rather to be wonder'd at that they should for any considerable Time support so laborious an Employment. The Fevers of Brick-Makers are generally attended with a Delirium; and if they should recover, they are afterwards much subject to chronical Disorders, such as Quartans, Cachoxies, and frequently Dropsies. As Brick-Makers are generally poor, when they are seiz'd with a Fever they either confine themselves at home, and commit the Cure to Nature, or are convey'd to the publick Hospitals, where, with the rest, they are treated with the usual Remedies, such as Venesection and Purging, without the Physician's knowing that they are exhausted by long and hard Labour.

In the Beginning of Brick-Makers Fevers, a Bottle of sweet Water would prove highly beneficial for washing off the Nastiness adhering to their Bodies. And the Pores of the Skin being relax'd and open'd, a Discharge of the febrile Heat would be procured; but at present Baths are not so much used as formerly. In ancient *Rome* it was customary for Tradesmen, after the Labours of the Day, to repair to the publick Baths, where they at once remov'd the Sordes and Weariness their Bodies had contracted; for which Reason they were less subject to Diseases than our modern Tradesmen. Persons of all Ranks and Conditions frequented the Baths. In the Infancy of the Christian Church, not only Men, but also Women, whether married or unmarried, used Baths, as is obvious from a Letter
of

of St. *Jerom's* to *Eustachius*, where he tells him, that if a Virgin is to use the Bath, either for the sake of Cleanliness or Health, it ought to be in a dark Place, or by Night, because the former Simplicity of the Baths had degenerated into a superfluous Pomp and Luxury. *Seneca*, in Epist. 89. when describing the Country Retirement of *Scipio*, after he had subdued *Africa*, speaks in the following Manner: " This General, who was the Terror
 " of *Carthage*, wash'd his Body when fatigued
 " with rural Labours; but he did not wash every
 " Day, for Persons who record the ancient Customs of the Town, affirm, that the Inhabitants only wash'd their Hands and Legs every
 " Day, and the whole Body on Holy-days." For Brick-Makers then, who are almost continually besmear'd with Clay, Bathing is highly expedient both for preventing and curing Disorders.

C H A P. IX.

Of the Diseases of those who work in Pits.

AS Brick-Makers are exposed to the Heat of the Sun and Fire, so those who work in Pits are exposed to cold and excessive Moisture, even in the Middle of the Summer; for they cannot work in the Spring and Winter, when the Earth abounds so much with Water. Since then the Summer is the proper Season either for making new or cleansing old Pits, every one must perceive to how great Danger those employ'd in this Work are exposed to, since they have so many
 Transitions

Transitions from cold to hot, from dry to moist, and from moist to dry. By a long Continuance therefore in those Places, which are both cold and moist by the Collections of Water, the Pores of the Skin are easily constricted, and Perspiration injured, which is succeeded by acute and malignant Fevers. Malignant Fevers may also proceed from another Cause, namely, the fetid Exhalations of Pits, especially in Hills and mountainous Places, where the Sulphur, Nitre, and other Minerals, corrupt the Juices and animal Spirits of the Workmen. But in plain and low-lying Grounds the Diggers are not so much injured.

In the Fields about *Modena* are the celebrated Pits, which yield the purest and whitest Petroleum of any in *Europe*. On the Top of the *Festine* Mount is a small Plain, in which are various Pits, both old and new, in which Petroleum is found floating on the Water. These Pits are very deep, and can only be made with a Chissel and Mallet, because the whole Mountain consists of Flint. When a Pit therefore is sunk, the Labourers are greatly injured by the noxious Smell with which the whole adjacent Air is impregnated; for I remember when I went to see the Pits, I perceiv'd the Smell of Petroleum, when I was about a Mile distant from them. Sometimes the Digger breaks some Veins of Petroleum, which flowing out copiously, forces him to call for Assistance in order to draw him up, for fear of a Suffocation, and after he is taken up he is for some time afflicted with a Difficulty of Breathing. 'Tis also reported, that some of these Diggers were miserably suffocated by the breaking of a large Vein of Petroleum. Concerning the Petroleum of the *Festine* Mount, I formerly printed a Letter directed

to the Governor of the *Paduan* Gardens, and at the same time took Care to have the Work of *Franciscus Areostus*, concerning the Petroleum of the Zebinean Hill reprinted. The Petroleum of this Hill is easily obtain'd, since in a certain deep Valley is a small Pit in which it floats on the Water. But this Petroleum is red, and far inferior to that of the Fessine Mount, which is extremely white, and of a less ungrateful Smell. There are other kinds of Diggers about *Modena*, who do not work in the Summer, but in the Middle of Winter. The Pits however these make are far different from the others, since they yield nothing but an highly pure and limpid Water, concerning the surprising Course of which I have publish'd a Physico-hydrostatical Treatise. As it would be too tedious minutely to describe these Pits, I shall only observe, that in digging them there occur alternately various Strata, sometimes of a eretacious and sometimes of a marshy Earth, under which lies a sandy Stratum mix'd with a small Quantity of viscid Substance; and when the Diggers come to this, they think their Work finish'd, since they then perceive the Noise of the flowing Water. This sandy Stratum they perforate with a large Piercer about two or three Ells deep, upon which the Water gushes upwards with such Impetuosity as soon to fill the Pit, after which it flows constantly. In digging these Pits many Curiosities are found, such as large Trees, Bones, and other Substances.

This is an highly sordid and laborious Employment, for since the Workmen are obliged to continue in these Pits for almost a Month in the Winter-time, because in Summer they cannot work on account of the Exhalations, but in the

the Winter have no Exhalations, and are as warm as in a Stove, by means of their Labour and the Concentration of the Heat; and since they are frequently drawn up in profuse Sweats, they must necessarily be afflicted with all the Disorders arising from an injured Perspiration. Pit-Diggers in general are subject to Disorders of the Breast, De-fluxions and Cachexies, on account of their bad Aliments, so that when they are forty or at most fifty Years of Age, they generally quit their Business and Life at the same Time.

These Labourers are to be cured, when they are afflicted either with acute or chronical Disorders, by restoring the Perspiration long obstructed in the dank Pits, by correcting and purifying the Juices, and by recruiting the exhausted Strength. It is also expedient in the Beginning to use frequent Frictions of the whole Body with *Aetius's* Ointment, to apply Cupping-glasses, and to wash the Legs and Arms with generous Wine, in which have been boil'd the Leaves of Sage and Lavender, and the Flowers of Rosemary. Cupping also, with Scarification on the Back, is a celebrated Remedy for hard-working Tradesmen. Moderate Venesection is to be used, or the Hæ-morrhoidal Veins open'd by Leeches. They are also to be purg'd, tho' very gently, lest their Strength should be too much exhausted; since, according to *Hippocrates*, in Sect. 2. Aph. 36. excessive purging is not salutary to Persons who live on bad Aliments.

C H A P. X.

*Of the Diseases of SAILORS, and Persons
employed in Rowing.*

HUMAN Happiness and mutual Commerce are by no Art more effectually promoted than by Sailing, which, by conveying the Commodities of one Country to another, may be said to join the East and the West, the North and the South together. This Art was formerly so much esteem'd, that its Inventors were dignified with divine Honours. Thus the Argonauts, who sail'd for *Calchos*, are number'd among the Heroes, and the Ships which convey'd them, are by the Poets translated to Heaven. How much then would the Antients be surpriz'd, if they had seen the Perfection to which our modern Navigation is arriv'd! Let us therefore enquire into the Disorders incident to Sailors; by which Word I do not mean those who go to Sea for the sake of Pleasure or Commerce, but those who constantly work the Ship. These then, as well as Rowers, and others of a like Class, are subject to acute Disorders of all kinds, on account of their Method of Life, and the Hardships to which they are exposed. They are also subject to chronical Diseases, which however are not so long protracted as those of Land-Tradesmen. Before the Use of the Loadstone was discovered, Navigation was a laborious Task, since in Night-time the Sailors were oblig'd to

have

have their Eyes continually fix'd on the polar Star, in order to know how to direct their dubious Course, whereas by the Assistance of the Compass the Pilot steers the Helm with more Certainty and Safety.

Sailors exposed to the Fury of the Winds and Waves, the Inclemency of the Weather, and a thousand other Hardships accompanying Sailing, are most subject to acute Diseases, especially malignant and inflammatory Fevers, which do not last long, since they are soon terminated either by a bad or laudable Crisis: Nor in such Cases are Medicinal Precepts to be much regarded; but, as *Celsus* advises, efficacious Medicines exhibited with the utmost Expedition. Sailors have Medicines along with them, and Surgeons to exhibit them. Preparations therefore of Theriaca and Bezoar are above all other Things beneficial for forcing the peccant Humours from the most violent Parts of the Body, and expelling them by Sweat. These Medicines are to be exhibited in far larger Doses than to Patients at Land, because as the Aliments of Sailors are coarse and of bad Qualities, their Disorders must of course be far more malignant. *Thomas Bartholine*, quoted by *Bonetus*, in *Medicin. Septentrional.* asserts, that at Sea Medicines ought to be a third stronger than at Land, which holds true not only of Purgatives, but also of Diaphoretics, Diuretics, and all other kinds of Medicines. *Johannes de Vigo*, Surgeon to Pope *Julius* the second, has a particular Chapter on the Fevers of Sailors, where he orders the more generous Remedies to be exhibited, since 'tis to be suppos'd, that on account of their coarse Aliments, salted Fleshes, bad Bread, and half-putrid Water, their Humours are so highly peccant,

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cant, that the Disorder will not yield to common Remedies. As *Bartholine* and *Johannes de Vigo* give these Cautions with respect to Persons at Sea, during particular Voyages, how much more are they necessary with respect to the Sailors themselves, and other Workmen, who spend the whole of their Lives at Sea.

But among the whole Class of Sea-faring Men, none are subject to more Hardships and Diseases than those miserable Slaves who tug incessantly at the Oars of the Gallies; for when these Men are seiz'd with acute Disorders, they are soon releas'd from their Slavery by a grateful and welcome Death. 'Tis however surprising to observe, that vast Numbers of Rowers, who toil both Night and Day, are nevertheless fat and fresh-colour'd; the Reason of which, according to Lord *Verulam*, in *Sylva Sylvarum*, *Cont.* 8. *Exp.* 738. is, “ Because a sedentary Life in some
“ measure supports the Stomach, which is render'd pensile or hanging by much standing or
“ walking. Hence those Employments most
“ contribute to the Prolongation of Life, which
“ rather agitate the Limbs than the Stomach and
“ Abdomen, such as Rowing and Sawing.”

The whole Crews of Ships are sometimes seiz'd with epidemic Disorders, either from a foreign and adventitious Cause, the Number and Crowding of the Men, bad Aliments, corrupted Waters, or the excessive Frights of some in Storms, who being by this means seiz'd with malignant and pestilential Fevers, convey the Contagion to others. In this Case there is no flying from the Disorder, and the only Thing a Person can do is to commit the Event to Providence, tho' in long Voyages
every

every Sailor ought to use Preparations of Theriaca.

Sailors are also subject to other very troublesome, tho' not so dangerous Disorders; for they are often afflicted with a violent Costiveness, which is principally owing to their coarse and hard Aliments, their smoak'd and salted Fleshes, and their Sea-Bread, which is by *Pliny* recommended for stopping Fluxes. The Costiveness of Sailors is by *Helmont* in *Blasbum* N. 36. ascrib'd to the Sea-Air and the Rolling of the Ship; for as Persons at Sea, eat a great deal more than those at Land, and discharge less by Stool, much must be dissipated and eliminated from the Body by insensible Perspiration, and Costiveness thus produced; for, according to *Hippocrates*, the Relaxation of the Skin produces such an Effect. But I think it better patiently to bear this Costiveness, than to attempt its Removal by Medicines taken internally, which would afterwards increase the Disorder, since Clysters cannot be used, nor proper Materials for them commodiously had on board Ships. Sailors are also afflicted with obstinate Watchings, on account of the vast Charge committed to their Care and Vigilance. They are also subject to pruriginous Disorders all over their Bodies, on account of the Sordes collected on the Skin by insensible Perspiration; for it is hardly possible for Men to keep themselves clean on board a Ship, since they often have not Water to wash their Hands and Faces, much less to wash their Linnens, for which Reason they swarm with Lice. Besides, there are such Numbers of Bugs on board Ships, that 'tis impossible to escape their Bites, and the disagreeable Smell proceeding from them produces a Nausea and Vomiting.

ing. Those Rowers, who for the most part have nothing on their Feet, are subject to Ulcers in their Legs, which are squalid and dry, as proceeding from a falsuginous Humour. These are to be cured like the similiar Ulcers of Fishermen. Sailors are also frequently afflicted with violent Cephalagias, especially in Voyages to the *East* and *West Indies*; for when they pass the Equinoxial Line, and go from the temperate to the torrid Zone, they are seiz'd with violent Head-aches, and an excessive Uneasiness both of Body and Mind. For these Reasons, Sailors and Sea-faring Men rarely live so long as those who pass their Time at Land. The Reader, for his further Satisfaction, may consult *Glaubert Consolatio Navigantium*.

C H A P. XI.

Of the Diseases of HUNTSMEN.

THAT Hunting is among the earliest Arts, is sufficiently obvious from the sacred Scripture, where it is said that *Lamech*, who undesignedly kill'd *Cain* with a Dart, was a mighty Hunter, and the Inventor of many Arts. In these early Days 'tis probable that Hunting, even before Agriculture was known, was used for supplying the Necessaries of Life, and only became a Diversion when Towns and Cities were built, and a

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rude and barbarous exchang'd for a social and humane Life. At present the Exercise of Hunting is not so universally tolerated as it was in former Times, since Princes and Men of Fortune debar the Vulgar from hunting in certain Parts, that the Game may be the better preserv'd for their own Diversion. Tho' Men of Fortune generally have Huntsmen and Fowlers, yet I principally intend to treat of the Diseases of those who constantly follow this Business for the sake of a Livelihood. 'Tis then no wonder if these Men sometimes demand exorbitant Prices for their Capture, since it often costs them much Watching, Fatigue and Toil, before they can obtain it; and which is still worse, often lays a Foundation for Diseases which prove mortal to them. Tho' the poor Men, who constantly use this Art for the sake of Bread, are most subject to Diseases and Misfortunes, yet there are not wanting Instances of Princes and great Men, who in Hunting have either been destroy'd by wild Beasts, or by Fatigue seiz'd with violent and mortal Disorders. Nor is this to be wonder'd at, since Hunting is so agreeable to People of all Classes, that for its sake they forget the Affairs of their Families, and without complaining sustain the various Excesses of Heat, Cold, Hunger and Fatigue. Thus *Horace* tells us, *Manet sub Jove frigido venator, teneræ conjugis immemor.*

I would not be thought to condemn Hunting, which is naturally a salutary Exercise, cures many chronical Disorders, and prevents many violent Diseases, since, according to *Rhases*, in a certain pestilential Constitution, the Huntsmen remain'd free from the Plague. Besides, Hunting is a

Diyerſion which exerciſes not ſome, but all the Parts of the Body, as we are told by *Galen*, in *lib. 2. de tuend valetud.* for the Huntsman muſt as Occaſion requires, walk, run, jump, ſtand ſometimes ſtraight and ſometimes crooked, cry and in a Word exerciſe all the Parts of his Body and that ſometimes in the Evening, ſometimes in the Night, ſometimes in the Winter, and under Rains; by which means he muſt become ſubject to various Diſeaſes, eſpecially if 'tis his Buſineſs throughout the whole Year.

Formerly Hunting was more laborious than at preſent, ſince the Huntsman was oblig'd to be arm'd with a Bow and Arrows, and loaded with Hunting-Poles, all which were a great Incumbrance to him. Beſides, he had Occaſion for ſtrong Arms, in order to bend his Bow; whereas our Guns, which are light and ſimple Inſtruments, produce greater Effects with far leſs Trouble.

Thoſe who are conſtant Huntſmen, as well as other Artificers, are ſubject to various Diſeaſes, according to the Season of the Year, tho' moſt generally their Diſorders are of the acute kind. Thus during the Summer they are ſeiz'd with burning Fevers, a dry Cholera, and Dyſenteries, becauſe the bileous Humours are by the Heat, Hunger and Thirſt, exalted to the higheſt Degree of Acrimony. But in the Winter, as the Cold eaſily conſtricts the Pores of their Skin after a few ſlight Sweats, they generally fall into ſome of the Diſeaſes of the Breſt, ſuch as Pleuriſies and Peripneumonies. They are alſo ſubject to violent Cephalalgias, becauſe the Head is more expoſed to the Injuries of Heat and Cold, than

than any other Parts of the Body. Nor is it an uncommon thing for Huntsmen to be afflicted with Hernias, brought on by jumping and leaping when in Pursuit of their Prey.

How these Disorders are to be cured, will be no Mystery to a skilful Physician; for in treating the Diseases of this Class of Tradesmen, we are to observe that their Strength is exhausted by Fatigue, rather than impair'd by the Redundance of peccant Humours; so that we are to proceed cautiously in the Use of the more important Remedies; for such Patients cannot bear violent purging and copious Venesection, since Hunting rather diminishes than augments the Body: For which Reason, *Galen* was of Opinion, that Huntsmen ought to be of hardy and robust Constitutions, and not to indulge themselves in any Excess, for fear of impairing their Strength, and bringing on various Diseases. Thus *Hippocrates*, in *Epidem.* lib. 7. N. 58. tells us of a certain Eunuch, who became dropical by hunting and running. Hunting is by no means the fit Province of Eunuchs and effeminate Persons, but of hardy, vigorous, and robust Men; in treating whose Disorders we are to proceed cautiously, principally endeavouring to attemperate the Humours, by disposing them to a cutaneous Discharge; for when Men of this Class are seiz'd with acute Disorders, they are more speedily relieved by Diaphoretics than by any other kinds of Medicines. The Antients, for the Fevers of Huntsmen, order'd Batts; and tho' this Practice is at present exploded, yet if the Fever arises from Cold, and a Constriction of the cutaneous Pores, a Bath of sweet Water may be very properly used.

But when acute Diseases terminate in these of the chronical kind, especially in Quartans and other Species of Intermittents, omitting Deobstruents, and the Use of the Bark, we are to remit them to the moderate Use of their Employment in order to have Health restor'd by that which before destroy'd it.

Fowlers and Bird-Catchers, by their excessive Labour, Sweats, and Fatigues, are also subject to various Diseases, such as Tertian and Quartan Fevers; nor are they exempted from acute Disorders; and such of them as ply Night and Day in small Boats in the Lakes and Marshes, are afflicted with malignant Fevers, Cachaxies, and often Dropsies, on account of the noxious Exhalations and Moisture of the Air.

C H A P. XII.

Of the Diseases of SOAP-BOILERS.

THAT the Antients used Soap for cleaning their Clothes, is sufficiently certain. *Pliny*, in *lib. 28. cap. 12.* tells us, “ That Soap, which consists of Sewet and Ashes, was invented by the *French* for beautifying their Hairs. The best is that prepar'd of Beech Ashes, and Goats Sewet, and which may be either thick or liquid, both of which are used by the *Germans*, tho' more by the Men than the Women.”

Galen,

Galen, in *Lib. de Medicamentis Simplicibus*, mentions Soap, which he says is of an abstergent Nature, and composed of a Calx, a Lixivium, and Goats or Oxes Sewet. From this Account 'tis sufficiently obvious, that there is a great Affinity between the Soap of the Antients and ours; for the Antients mix'd the Fat of various Animals with a Lixivium of Lime and Ashes, whereas at present we use Oil instead of the Sewet. *Venice* Soap is thought the best, and for that Reason large Quantities of it are convey'd to foreign Countries. As it would be tedious to give a particular Detail of all the Steps of this Work, we shall only observe in general, that it is a very hard and laborious Business. *Venice* Soap therefore has three Ingredients, Quick Lime, Ashes, and Oil; the Lime is obtain'd from the adjacent Mountains, and the Ashes from *Spain* or *Alexandria*, tho' the Workmen prefer those brought from *Spain* in Balls. Of what Plants these Ashes are made I am not certain, tho' I believe they are prepar'd of those which grow on the Sea-Coasts. They first dilute and mix this Lime well with common Water, or when it cannot be had, with Sea-Water. With the Lime thus diluted, they mix the Ashes previously ground in a Mill, adding fresh Water, if necessary, that the whole Mass may become granulated, and acquire some Degree of Solidity. This Mass they put into some Pits made for that Purpose, and throw upon it Water, which gradually imbibes the acrid Particles of the Mixture, and descends thro' certain Passages into other Pits, repeating the Operation till they obtain a strong and acrid Water like *Aqua-fortis*. When they have obtain'd a sufficient,

cient Quantity of this Water, they put a certain Portion of it into large Brass Casks, some Part of which they leave empty. After this, with a brisk Fire, they boil this Water for a whole Day, and mix with it Oil of Olives, in such a Proportion that the Oil is to the Water as one and an half, if it is recent, but a little more if the Oil is old. This new Mixture they boil over a slower Fire, and every six Hours permit most, tho' not all of it, to pass into other Casks, and pouring fresh Quantities of the acrid Water into the former Casks, repeat the Operation every six Hours, observing when the Matter begins to thicken. After which they pour it into square Frames in an open Place, and when it is thoroughly cold they divide it into Wedges with proper Saws.

The Workmen sustain no Injury from the Matter on which they work; for tho' they breathe an Air impregnated with acrid Particles, yet they labour under no Disorder of the Breast, or any other Part, but remain robust and fresh-colour'd; only their Feet, which are without Shoes, and other Parts, are excoriated when the strong and acrid Water reaches them. The greatest Disadvantage of this Business is, that the Workmens being oblig'd to labour hard in an hot Place, almost with a continual Fire in it, are often obliged to step out for the sake of the free Air. When therefore they are so fool-hardy, as when over-heated to come abroad in the Winter Season, they are generally seized with violent Costiveness, acute Fevers, and Disorders of the Breast, such as Pleurifies and Peripneumonies. These Men also frequently com-
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mit Errors in Regimen, since when their Bodies are over-heated and parch'd, they often go to the Wine-houses, and drink to Excess. The best Advice I can give to Soap-Boilers is, not to over-work themselves; and when they go abroad, especially in the Winter, to have their Bodies, and especially their Heads, well cover'd. But when they are seiz'd with acute Fevers, they are to be reliev'd by speedy and repeated Venesection, and the other Remedies proper for the Cure of burning Fevers.

From this Account of Soap we are enabled to explain the Nature of saponaceous Medicines, which are possess'd of an abstergent and cleansing Quality, which depends on the alkaline and lixivial Parts duly tempered and mixed with an oleous Substance; for as in Soap, the Oil is mix'd with the acrid Water, in order to correct its acrimonious and corrosive Quality, so Nature has wisely mix'd an oleous Substance with saponaceous Medicines, in order to render their Operations more mild and gentle. Thus the Herb Soap-wort, which, when long macerated, produces a Froth like that of Soap, is said to have such an happy Mixture of acrid and pinguious Particles, as to remove the French Pox, by its abstergent Quality, whether used in a Decoction by itself, or in Conjunction with other Substances of a similar Nature. Thus also a Guajacum, the most powerful Anti-venereal Remedy, possesses oleous and acrimonious Parts duly mix'd. Oil therefore, by its mild and gentle Nature, corrects Acrimony, and blunts the irritating Spiculæ; so that it may be justly said to correct, both an alkaline Lixivial, and an acid

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acid Acrimony. *Hippocrates, in lib. 4. Acid.* in a Cholera, prefers Oil to all other Remedies. " Give the Patient Oil, says he, that his Pain " may be alleviated, and his Body render'd " soluble." That Oil corrects an acid Acrimony, is sufficiently obvious from Sulphur, in which there is a great deal of Acidity, which however is render'd imperceptible by the pinguious and inflammable Substance it contains.

F I N I S.





